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JOURNAL OF PSYCHO-ASTHENICS

VOL. XIX

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No. 1

Devoted to the

CARE, TRAINING AND TREATMENT OF THE FEEBLE-
MINDED AND EPILEPTIC

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JOURNAL OF PSYCHO-ASTHENICS

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CONTENTS

The Extension of the Care of the Feeble-Minded. —By E. R. Johnstone, Vineland, New Jersey.....	3
The Defective Delinquent in Ohio.—By E. J. Emerick, M. D., Columbus, Ohio.	19
The Defective Delinquent Girl.—By Mary Storer, Columbus, Ohio.....	23
A Brief Report on two Cases of Criminal Im- becility.—By H. H. Goddard, Ph. D., Vineland, New Jersey,.....	31
Reviews and Notices.....	36

3232
1-9

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No. 1

THE EXTENSION OF THE CARE OF THE FEEBLE-MINDED*

BY E. R. JOHNSTONE, *Vineland, New Jersey.*

The aim of the extension department of the Training School at Vineland, New Jersey, is to assist in any movement looking toward adequate care for all feeble-minded. The department wishes to give information and advice, not to undertake the task of directing the establishment of institutions, colonies, etc. Many experimental steps have been tried out at the Training School and in New Jersey, but this department has no desire to use these except as demonstrations of what may be done. Its distinctive work is publicity and propaganda and it desires to make widely known the best that is now being done in every state.

Although the object to be obtained has become well defined, the beginnings were rather hazy and the various steps have been somewhat those of the opportunist. As early as 1896 it was seen that the best place to recognize the feeble-minded was in the public schools, and in that year an attempt was made to get a report of the numbers in the schools of Allen County, Indiana. The condition was so little recognized, however, that the attempt¹ failed. Two later attempts in New Jersey brought better

*Read at the Thirty-eighth Annual Session of the American Association for the Study of the Feeble-Minded, Columbus, Ohio, June, 1914.

¹ The attempt came out of a meeting of the Northern Indiana Teachers' Institute in Fort Wayne, when one of the lecturers who had visited the School for Feeble-Minded urged the teachers present, especially those of the primary grades, not to return to their classes until they had visited the School for Feeble-Minded.

results and showed a growing understanding of these children. Special classes for backward children were formed in several cities, with the idea that these were pupils who were merely retarded and, by coaching, could be returned to the regular grades. The results in the past fifteen years have shown that a very large percentage of these special pupils are mentally defective and can never "catch up" with their normal mates.

It was soon found that specially trained teachers were needed to do the work effectively and our first real piece of extension work was the opening of a summer school for public school teachers in 1902. The session lasted six weeks. Such a school has been held every summer since. Other schools of like character have since been organized at Faribault, Minn.; Rome, N. Y.; Lapeer, Mich.; the Universities of Pittsburgh, New York, Washington, Columbia, N. Y.; the State Teachers' College, Greeley, Colo., and some other places. Following this came a demand for more information concerning the feeble-minded. Facts were wanted and some one was needed to present these facts. The officers of the Training School, like the medical officers of institutions in other states, gave all of the time that could be spared to lectures, etc. But the drain on their time and energy, without a special agency for such work, was inadequately met. Many able superintendents and physicians as individual workers had begun scientific research many years ago. The splendid work at Elwyn, of Wilmarth, and Barr, has been an inspiration to all who have followed them. The first organized department of research was begun by Rogers at Faribault, but the legislature made no provision for a laboratory or for a continuation of the studies. A few years later, however, Dr. Rogers was able to start again and a successful laboratory is now doing excellent work. Similar laboratories have been begun in several other institutions, and also in connection with some of the universities mentioned above. In 1906 the department of research at Vineland was founded. Scientific studies into the causes of feeble-mindedness were begun under the direction of Herbert H. Goddard, Ph. D. This has been continued and today there is a well organized laboratory with a staff of sixteen² workers.

² See publications of the Training School.

From the fact that this has been supported by the liberal gifts of a few public-spirited men, it has had a freer opportunity than can usually come to a state institution.

Just prior to the meeting of the legislature of 1909, the extension work in New Jersey took definite form in the organization of a committee on provision for the feeble-minded and epileptic. This committee is made up of Mrs. Caroline B. Alexander, of Hoboken, president of the State Charities Aid Association; Mr. Bleecker Van Wagenen, of New Hampshire, member of the Board of Directors of the Training School; Hon. Joseph P. Byers, Commissioner of Charities; Hon. Calvin N. Kendall, Commissioner of Education; Dr. Madeleine A. Hallowell, Superintendent of the New Jersey State Institution for Feeble-Minded Women; Dr. David F. Weeks, Superintendent of the State Village for Epileptics, at Skillman, and Superintendent E. R. Johnstone, of the Training School. Similar committees have been formed in New York and Pennsylvania.

This committee gathered together all available facts relating to the feeble-minded and epileptic of New Jersey, and presented its findings through the citizens of the various counties, to their legislators, to such good effect that within three years the legislature had appropriated as much money for buildings and furnishings as the total amount of such appropriations for the previous twenty years. Because of this sort of work New Jersey now has laws covering:

- a. Medical inspection in the public schools (Laws 1909, Chap. 92).
- b. Establishing special classes in the public schools (Laws 1911, Chap. 234).
- c. The retention of cases admitted to institutions for the feeble-minded (Laws 1909, Chap. 134).
- d. Parole for feeble-minded males (Laws 1910, Chap. 212).
- e. Sterilization (Laws 1911, Chap. 190. Since declared unconstitutional for epileptics).
- f. Prohibition of marriage of feeble-minded or insane (Laws 1912, Chap. 199).

g. Making Commissioner of Charities guardian for all feeble-mindedness the same as cases of contagion.

This committee has published four annual reports (which may be obtained from the secretary, E. R. Johnstone, Vineland, N. J., and this last year rested from its labors because a state commission appointed by the governor has been covering the entire subject.³

Three years ago the Training School appointed one of its officers, Miss Helen F. Hill, to do extension work in New Jersey, but the demand for lectures, papers, etc., in other states became so insistent that it was impossible to respond to more than a few of them, and one year ago the extension department was formally organized with Mr. Alexander Johnson as its director. Mr. Johnson has served as secretary of the State Board of Charities of Indiana, superintendent of the Indiana School for the Feeble-Minded, and secretary of the National Conference of Charities and Correction and is, therefore, just the man for the work. He is an ex-president of the National Conference, and also of the National Association for the Study of the Feeble-minded.

To do this work properly means a central bureau for the collection and dissemination of information; co-operation with laboratories and societies studying this and allied problems; a plan for getting and keeping the interest of large numbers of individuals and associations in all parts of the country; a definite campaign in each state where work is attempted with a preliminary study of conditions and speakers to follow; general publicity, and a final gathering together of the various groups into a national body, if such should at some future time seem wise. The present seems a most opportune time for a rather rapid development of the whole idea. Never before have the defectives been so much in the public mind. While awakening is needed in some quarters, in many others authentic information as to procedure is more needed. Sufficient facts are at hand to justify definite action, but few people know where to obtain

³ This excellent report of the New Jersey Commission on Mental Defectives may be obtained from Hon. Joseph P. Byers, State House, Trenton, N. J. The Committee on Provision, however, has not gone out of existence, but is ready for the next move.

them and it is not uncommon to have them say, "We are ready to do something, but what shall we do, and how shall we go about it?"

A. The Central Bureau.

The central bureau should follow all experimental work done, either in America or abroad. Any literature, data and statistics should be assembled and made easily available. Consuls in foreign lands will co-operate if they are asked. A file of laws relating to feeble-mindedness should be kept and an effort made to prepare model laws covering the treatment of this class. While it is important that its library should contain many of the books and pamphlets on the subject it is even more necessary that it should be able to tell where such may be found. Much valuable material goes through the columns of the daily press or the magazines. This should be secured and filed. The attempted assassination of prominent people, and many minor crimes are often traced to mental deficiency, and requests for information along these lines are frequently received. For years it was supposed that mental deficiency was caused by inebriety, tuberculosis, insanity, etc. We know now that many of these things are the results of feeble-mindedness. The percentage of such people who are feeble-minded is known in some instances, but needs to be ascertained in others. We need the facts and statistics relating to the epileptics and the insane; the criminals, juvenile delinquents, and truants; the syphilitics, prostitutes, and other sex offenders; the tramps, paupers, and homeless men and women; the drunkards and drug fiends, and the inefficient, who, while they "get along in a sort of a way," are always in evidence when we speak of tuberculosis, children's diseases, saving babies, tenement reform, and the slums. Each new study shows that large numbers of the members of the neuropathic family are as they are because they are feeble-minded. There must, then, be a large and live mailing list of people whose interest socially, financially or politically may be used toward the understanding and prevention of feeble-mindedness.

B. Co-operation in Study.

Whenever a problem of mental defect is presented, if the

department cannot find that a solution has been offered, it should be able to suggest a place where it might be worked out. Frequently the solution of one problem involves others, and if there is some central point it is possible to suggest the working out of two or more of these questions at widely different places, without unnecessary duplication of effort. It should be noted at this time that the department must assume no authority. In the broadest sense, it must be but the vehicle. Credit must be given unstintingly. The spirit of unselfish co-operation must be evident in every move made. The national or state governments, law, regulation, or force cannot accomplish what an unofficial "friend" can do. There must be a sympathetic attitude toward every piece of work, however small, and wherever done, whether the department fully agrees or not. It is to present material, not criticize it. Only a most friendly co-operation, ready to lend a hand, or let go in a moment, can hope to bring together a lot of diversified interests. We believe that a warm personal relationship now exists with the national medical, educational, psychological and charitable associations, as well as with the National Children's Bureau and the National Association for the Study of the Feeble-Minded, through the members of medical, pedagogical and executive staffs.

C. Interest.

Interest in the feeble-minded can best be secured by starting with individual cases. In the one state where this was definitely attempted the committee asked for the names of feeble-minded persons whose people wished them to have care. Names were returned from the waiting lists of the institutions for defectives by charitable societies, by public school teachers, by physicians, and by parents of other feeble-minded children. Letters were then addressed to all who had sent children's names, asking for the names and addresses of business and professional men and women who personally knew of the child in question. They, in turn, received letters telling them that it was only by act of the legislature that real results could be obtained. The addresses of the members of the legislature living nearest them were given, and they were asked to write or call upon their repre-

sentatives and explain the needs of the child. Printed matter and leaflets were furnished not only to this list of people, but to the newspapers, physicians, clergymen, etc. The campaign might have been greatly extended, but the committee accomplished what it had set out to do. The names secured as above were kept, and from year to year they have been informed of whatever steps have been taken, and their interest held. This list of names may be extended at any time by asking them to send in names of others who may be interested, and urging all to attend public meetings addressed by some member of the extension staff. At these meetings cards like the following are given out:

I am sufficiently interested in having the feeble-minded and epileptic in New Jersey properly cared for to

(a) Help locate any of the above who are in need of care; or

(b) Join a committee in my own community which shall co-operate with similar committees throughout the state; or

(c) Write to or see any one who may properly become interested socially, financially or politically; or

(d) All of the above. (Please signify by a cross where your greatest interest lies).

Name

Address.....

All of these names are being indexed by cards, and local committees are being formed.

Burlington county, New Jersey, has been well organized. Meetings were held by various members of the staff, in nearly every community, and committees formed at every meeting. These committees sent representatives to a central committee, and it was decided that for this county a special colony⁴ for the feeble-minded should be organized. The members of the central committees decided to raise \$10,000 for buildings, and each sub-committee went to work. They have nearly the re-

⁴ This colony is patterned after those of Massachusetts, Indiana, New York, Ohio, and others, but it is hoped at some future time to make it and other similar colonies independent of the parent institution but under the direct control of the states.

quired amount, and will hold their first annual meeting shortly. The use of land for the colony was given by the State Forestry Department, and building is already under way. The land is rough and uncleared, the buildings inexpensive, but neat and sanitary, on the plan of the Menantico Colony of the Training School, which was organized about a year ago to demonstrate the feasibility of this sort of thing. The slogan planned for the counties of New Jersey is: "We have the money for the buildings and the land—will you members of the legislature appropriate money for maintenance at the colonies?" In other states it might be: "We have the names of those needing the state's protection; we have furnished you all facts relating to them—will you furnish the money to properly house, care for and train them?"

The information of committees in other counties is now going on and the central state committee is formed. Its personnel is significant—one representative from each of the following state departments: Charities and Correction, Education, Forestry Reserve, Agricultural Experiment Station, and Public Highways. One member of the board and the superintendent of the Training School are ex-officio members, and besides this are three members from each county committee.⁵

In other states a different plan may be adopted, but the above is suggestive of how to go about getting a state thoroughly interested—and it is possible, for it has been done.

This co-operation of the various departments of the state is a most valuable thing. The Commissioner of Charities should secure appropriations for the maintenance of the inmates of the colonies; the Commissioner of Education provide special classes and any other assistance in training; the Forestry department should give the right to squat on the land, and should direct the clearing, running of fire lines, and reforestation; the director of the Experiment Station should direct the farming and stock-raising activities, and the carrying out of experiments and dem-

⁵ The Colony plan is not a new experiment. It was reported upon at the National Conference of Charities and Correction in 1891. Successful colonies, in connection with their institutions, have been in existence for ten, fifteen or twenty years in Ohio, Illinois, Minnesota, New York, Indiana, Massachusetts, and other states.

onstrations; the Commissioner of Roads should bring good highways to the colonies. In New Jersey this latter is being done by convict labor, and the next convict camp may be built on the colony property. When the convicts leave it will be cheaper for the state to abandon the buildings, which are being made permanent in character, than to undertake their removal. The result will be more building for the reception of the feeble-minded. These plans are now being carried out. The direction of the colony in Burlington county will for the present be by the authorities of the Training School, but in time will be turned over, we hope, to the committee named above. There is no reason why the whole plan, as outlined, modified to suit conditions, could not be carried out in any state. Parts of it are already under way in New York, Pennsylvania, North Carolina, Virginia and Illinois.

Every institution in each state should keep a register of interested visitors, and the local committees should secure a list of them. Interest in any institution may thus be extended to interest in the feeble-minded. The local committee should keep the lists of the people whom they have interested, and see that the state committee has duplicate lists. The home as well as business addresses should be noted so that certain of the mail may be sent there, with the intention of interesting the whole family. Local health boards, township trustees, boards of freeholders, commissioners, and other official bodies must be kept informed; also lodges, churches, labor unions and even social clubs. A live member in any such organization, if he be thoroughly interested, will get the matter before his organization from time to time. Ignorance is largely responsible for failure to act in the past. Enlightenment will be followed by action.

D. The Campaign.

Before starting intensive work in any new field someone from the extension department should look carefully over the ground, and decide where and how the preliminary steps should be taken. It is essential that this person should be tactful and advisory. The local people must be led to take the initiative. Following this should be meetings. One meeting leads to an-

other. The newspaper men find in them materials for a good "story." Two lectures are worth fully three times as much for the cause in a given district as one, and up to the point of saturation; i. e., the point at which there are no profitable fresh audiences left, the more places reached in a state, the better. The lectures are to be intensely practical, and clearly indicate a possible program for the state. A lecture merely for instruction or edification is of little value. Each should close leaving the feeling in the minds of the audience that they have been told something that they ought to do, and can do. This should be supplemented, if possible, by a field worker, circularizing, and correspondence. The field worker might spend several weeks, or even months, visiting schools and institutions, and giving the Binet and other tests in a systematic manner.⁶ In connection with the lectures should be exhibits (cards with enlarged photographs, tables and diagrams) to be placed in the lecture hall, store windows, or other places, or stereopticon slides, or moving picture films.⁷ There should also be a pretty thorough press service, specialized for the locality. This should be prepared ahead, and should consist of brief, pointed paragraphs, printed in galley form, which could be easily adapted by a newspaper to its columns. Cheap zinc etchings should be used in connection with this newspaper work.

Advantage must be taken of any public meeting of a social or sociological nature to secure a place for an exhibit. We have thus far found a desire to have one of our representatives appear on the program of medical and educational meetings. Indeed, when the matter is properly presented, there is no difficulty in getting a hearing at almost any kind of a gathering. Every State Conference of Charities welcomes the opportunity to hear of the feeble-minded. Consultations with parents and friends of defective children are eagerly sought, after many of the lectures.

⁶ This was done in Richmond, Va., where all of the children in the reformatories and also all the pupils, both white and colored, of the fourth grade in a number of the schools were tested. Richmond is paying for its own field worker, who is a Vineland graduate. In Illinois, upon the advice of the Extension Department, the Committee of the Juvenile Protective Association of Chicago adopted this plan as the basis of its study of the feeble-minded of that city.

⁷ Exhibits without some one to explain them are not of great value. It is interesting to see how quickly a crowd will gather in front of an exhibit as soon as some one who understands it begins to explain to one or two.

E. General Publicity.

What has been done with the *Journal of Psycho-Asthenics* and the *Training School Bulletin* merely indicates what might be done.⁸ With proper effort the present paid subscriptions could be greatly increased. The papers might be enlarged and illustrations added. Efforts should be made to cover our whole field. Because such a publication can never be more than perhaps a third-class advertising medium, it will probably never be fully self-supporting. There are already contributions from a widening range of sources. The increase in the size will make them more exchangeable, and will insure more quotations in other magazines. The publication of reprints in pamphlet form naturally grows. These are being sold at a trifle above cost. Many special issues should be made for free distribution. Leaflets calling attention to, or giving outlines of laws relating to feeble-mindedness should be widely distributed. There are many laws on our statute books today not enforced because they are unknown. By having stereotyped plates made of the most popular articles large editions can be printed at small cost. General newspaper publicity must form an important part of the larger campaign for extension. It will be comparatively easy to work up a list of newspapers of the quality of the *New York Evening Post*, the *New York Globe*, the *Philadelphia North American*, the *Springfield Republican*, the *Indianapolis News*, and a few others, which are distinctly socially inclined. These would be glad of articles of a column, or even two columns in length. Another set of newspapers, probably several hundred, could be listed which would publish articles from a quarter to a half-column length; and there is a list of a thousand or more available which could be procured from the press agent of the National Conference, for instance, to which might profitably be sent paragraphs of a few inches, perhaps, once a week. In addition to the newspaper work, but closely allied to it, there might be an extensive distribution of literature in the form of simple, terse leaflets. At every National and State Conference of Charities, med-

⁸In the recent campaign the organ of the New York State Charities Aid Association proved what can be done by one publication.

ical associations, educational associations, and Federations of Women's Clubs, leaflets might be distributed freely. Each leaflet should contain an offer of answers to queries, and of further printed information and a request that the reader will co-operate with his own local committee (the address of the secretary on the leaflet) or with the national committee by sending particulars with blanks for such reports, so that the information received, no matter how scanty, should be uniform, so far as it goes.

F. The National Body.

The plan outlined above is perhaps comprehensive enough to justify a central office, apart from any organization now in existence, and the extension department of the Training School will gladly turn its part over to anybody that promises permanency. Personally, I should like to see it directed by the National Association for the Study of the Feeble-Minded,⁹ but until some such step is taken, the extension department of the Training School at Vineland offers to co-operate with any movement looking toward the custody, care, maintenance and education of those whose minds have not developed normally. I believe that a new national body with representatives from all of these local committees should be formed only when there is a demand for it, if ever. It might be well, if such be found, to have an office separate from any institution. Perhaps a desk might be secured in the United Charities or some other bureau of social work, care being exercised that the work be not embarrassed by apparent affiliations with something else that might lead to misunderstanding. The program is so big, and the cost so great, that only a small part of it can be handled at the present time. I believe that the organization of units wherever possible should be pushed. There should be a corresponding secretary in every state. This should be a high-grade volunteer worker. Perhaps the superintendents of the state institutions will appoint some one from their staff, or do it themselves, perhaps an officer or clerk in the State Board of Charities or State

⁹ Whenever work is done in any state where there is an institution, the superintendent thereof should first be consulted and he should also become ex-officio a member of the general committee.

Charities Aid Association. In states where the interest is well worked up there might easily be created a staff of county correspondents, who would work under the state correspondent. The function of these correspondents would be to collect information, distribute literature, arrange for meetings, and be on the lookout for errors and misunderstandings and promptly report them to headquarters for answer or explanation. In some states today there is but little understanding of the institutions for the mentally deficient. In the minds of many otherwise intelligent citizens there still lingers a belief in bars and bolts, torture and cruelty when the word "institution" is used. Many parents are afraid to send their helpless children to an institution because they do not understand. These local committees could clear up this situation with photographs and descriptions of their institutions. As soon as parents understand what a really happy, cheerful, home-like place the school for the feeble-minded is, they will not only be glad to send their children, they will also co-operate in every way with the members of their legislatures and instead of finding fault with the money appropriated, will encourage the legislators to spend money to care for the feeble-minded in the right way and so save society from the feeble-minded and the feeble-minded from themselves. Again, it should be said: If the larger work of extension is to be successful it must be done in the spirit of unselfish co-operation--giving only when asked, going only when wanted, aiding only when assistance is needed, withdrawing when its presence is not desired. Law, regulation, or force cannot accomplish what an unofficial body can do. The work must be founded upon friendship and good will.

DISCUSSION

Alexander Johnson, Vineland, New Jersey: There is one experiment in government which I should very much like to see made, although I hardly expect to see it attempted during my lifetime, and that is for some state to take all of its feeble-minded of every grade into some kind of educational or custodial care. If the different states would contribute a sum of money sufficient

to help one state make this great social experiment, I think we should teach the world a lesson that it could well afford to learn. After all, the proposition for one state to care for all its feeble-minded is not so unreasonable as it sounds. Just think what we have done in forty or forty-five years with regard to the insane. If the assertion had been made forty years ago that by the year 1914 eighty to eighty-five per cent. of the insane in the United States would be under proper care, it would have seemed to be wildly improbable, and yet that is precisely what has happened. Forty years ago only about a third of all the insane were in state institutions; now considerably more than two-thirds are under such care, and the cost has not bankrupted us. What has been done for the insane might surely be done for the feeble-minded and epileptic, especially when we remember that on a rational system, the expense per capita is very much less for the feeble-minded than for the insane, while on the other hand the danger to the body politic from the former class is much greater than from the latter. The gravest danger that can wait on any race or nation is the lowering of the physical, mental and moral standards of its population. Such a lowering is a present danger to us, and it will come, if it does come, by the propagation and increase of the defective classes. If the insane were all neglected only some of them would have children, and not all their children would inherit their mental defect. Only about one-third of the new cases of insanity are classed as hereditary by even the most pessimistic statistician. On the other hand nearly all of the feeble-minded, if neglected, will have children, with or without marriage, and most of their children will inherit mental defect in one form or another.

The extension department, which I represent, is desirous of working in co-operation with all the institutions in every state, but its first work has naturally been in the state of New Jersey where, for the time being, its headquarters are situated. For that state the department has adopted a definite program, but we do not think for a moment that our program is the best for every state and we are desirous to work out in every state the plan which is best for it. We are beginning with the assumption that

a number of feeble-minded children, up to the time of puberty, may properly be cared for in their own homes. To this end we are promoting special classes in the public schools. We have a law which requires each school district which finds in its public schools ten or more children who are three or more years behind their natural grade, to provide a special class for the backward, in which case the state gives a bonus of five hundred dollars per annum towards the expense of each such class. Secondly, we believe that a large number of children are so poorly cared for at home that they ought to go as soon as possible to a residential training school. We believe that after the children have reached the age of adolescence, if they are definitely and positively classed as feeble-minded, they should be kept in some form of industrial home, the best form, as we believe, being that of a colony under the guidance of a state institution, or under some other proper guidance, where they may be housed in commodious but economical buildings and where their labor may be made economically useful towards their own support.

The children alluded to are those whom we class as educable. We believe, very strongly, that it is time to differentiate clearly between the idiots and the imbeciles and morons; to recognize the fact that the idiots are incapable of training in usefulness; that what they need is kindly asylum care; and that they should not be allowed to clog up and embarrass the training schools. We think it is probable that in some states, and we are trying the experiment in New Jersey, the work might be properly divided between the counties and the state, somewhat on the same basis that the work with the insane is divided in Wisconsin and one or two other states. This involves partial payment by the state of the support of those whom the counties care for, and complete oversight by a state board of the work the counties are doing, this oversight enforced and made practical because the money contributed by the state is only to be paid to the counties when they are doing their work properly. We have some experiments which look hopeful already begun in New Jersey in this direction. For other states, where the work of the state institution is properly understood and is being very

successfully done, as in Ohio, Michigan and most of the middle western states, an entirely different plan might be desirable. The colony plan is adaptable in connection with a large state institution. The important thing is that the three-fold nature of the work, namely, asylum care for idiots, training for the educable, and industrial custodial care for the trained imbeciles and morons, shall be clearly understood. One of the great advantages of having the three-fold work conducted by a single institution, or under a single board of managers, is that much of the labor of the trained imbeciles can be advantageously used in the care of the idiots and of the younger children and in productive farm and other work for the whole institution.

The extension department has now been at work about a year, not only in New Jersey, but in many other states. We have been able to be of material assistance, for example, in the state of Virginia, where a distinct forward movement has been made which we have helped. During the year the extension department has been represented in fifty-seven cities and eighteen states. More than one hundred twenty-five lectures, many of them illustrated, have been given, and we are hoping to lend a hand, or a voice, wherever we can be useful. The extension department only goes where it is invited. We have tentative invitations from a number of states where no institutions exist, including Arkansas, Alabama, Georgia, Tennessee, Louisiana and South Carolina. Our plan is to co-operate, and to be guided in the program which we offer by those already engaged or interested in the work in the particular state. We feel that the people who know best how to plan such a program are those in charge of the existing institutions and we are careful to do nothing without consulting them. We want to work so carefully that we shall not embarrass existing arrangements. We recognize that you who are here present are, or ought to be the leaders in your respective states. We want to work for you in every state, but we want to work with you and, as we might say, under your direction.

THE DEFECTIVE DELINQUENT IN OHIO*

BY E. J. EMERICK, M. D., *Columbus, Ohio.*

The defective delinquent presents our most difficult problem. This is especially true of the defective delinquent girl. People are just beginning to realize that these girls and boys who have been known as "bad girls" and "bad boys" are, in the majority of cases, defective delinquents. In Ohio, we began our research work on defectives with children in our institutions. We traced their family histories, and investigated their home environments to find out, if possible, why they were feeble-minded. In the past year we have extended this study of hereditary and environmental influences to inmates of reformatories, jails, and industrial schools. The more we investigated, the more we felt that there are no such persons as "bad" boys or girls. They are normal people, with bad environmental conditions; or they are defective boys and girls.

Some time ago, one hundred girls of the Industrial Home, and one hundred boys of the Industrial School, were given the Binet test. Of the one hundred girls, fifty-nine were found to be feeble-minded, fourteen were borderline cases, thirteen were retarded, and only fourteen were considered normal. Of the one hundred boys, forty-six were feeble-minded, twenty-six were borderline cases, eleven were retarded, and seventeen were normal. This was as I expected, more normal and fewer feeble-minded boys than girls, since boys are more exposed to temptation than girls. Of the forty-six feeble-minded boys, thirteen came from one county, and our field worker examined their records. One, fifteen years old, tested 10.2 years; had been before the court three times. Another, at seventeen, tested 10.4; had been five times in the Boys' Industrial School for various misdemeanors; would break up the furniture and often threatened to kill his people. Another, at fifteen, testing 9, had been three times before the court and twice at the Boys' Industrial School. Still another.

*Read at the Thirty-eighth Annual Session of the American Association for the Study of the Feeble-Minded, Columbus, Ohio, June, 1914.

age fifteen, testing 10.6, had been twice at the Boys' Industrial School, for stealing, bumming, and incorrigibility. Records of the remaining eight boys tell the same story of repeated offenses. I might say here that the mental ages of these thirteen boys serve to bear out Dr. Goddard's statement that the boy retarded at nine or ten is more liable to become a criminal. The mental ages of these boys ranged from nine to ten and six-tenths years.

Custodial care is equally imperative for the mentally defective girl. What is to be done? One-half of the boys and girls in our industrial schools are distinctly feeble-minded. As such, they are not responsible for their misdeeds; and as soon as they are released from the schools, they repeat their offenses. They cannot be reformed; they lack will power. In the same institutions with them are normal boys and girls, capable of normal conduct under normal conditions. What I would suggest is this: The industrial schools could serve as permanent custodial institutions for defective delinquents, and the offenders of normal mentality should be paroled to good homes, where they would be sent to school, and in all respects given the opportunity of normal development. Such boys and girls are capable of making good, and should be given the chance. With the new Research Bureau, we hope it will be possible, after careful physical and mental examination, and study of heredity and environment in each case, to accomplish a more nearly just sifting out of our delinquents, and each individual can be given what is really "a fair deal" to society and to himself.

The sources of our defective delinquents compel our attention. Miss Storer, one of our field workers, is investigating an almost uninterrupted strain of degenerates, some 400 in number, in the southern part of our state. From data already secured, it appears that about 90 per cent. of the members of this strain are mentally deficient. The incidence of alcoholism, thievery, petty criminality, and of insanity, epilepsy, and feeble-mindedness in these families runs very high, as does the number of individuals in police court, jail, workhouse, and industrial schools. As long as such people are at large so long will they continue to be a constant problem for the penal authorities.

The most serious aspect of the whole problem is that of the disposition of our defective delinquent girls. On the waiting list of our Institution for Feeble-Minded, we have an appalling number of these outcasts. Steeped in vice and crime, graduates of the slums, boastful of their vile experiences—it is a crime to place these girls who have gone into the lowest depths of immorality with our girls who have come here as children, or from better homes, and who know nothing of immorality. On the other hand, these delinquent girls are wholly unmoral and irresponsible, and a term of a few years at an Industrial Home can do nothing for them, except to make them crafty and shrewd. What are we to do with these girls? At present, there is no adequate provision for them. We need a place for their segregation, between the ages of fifteen and forty-five, at least, to put a check upon their multiplying. In Ohio, the Reformatory for Women at Marysville could be made such a custodial institution. The solution of the problem is most pressing, as these unmoral women are by far the most dangerous individuals we have at large.

DISCUSSION

Mr. A. W. Butler, Indianapolis, Indiana: I desire to call attention to the fact that in our correctional institutions operating under the indeterminate sentence and parole laws there is a continual accumulation of mental defectives. The figures given out show an increasing number of mental defectives in such institutions. There the prisoners are tested and trained and are released when in the opinion of the parole board they are fit to go out with reasonable assurance that they will be able to keep the law under free living conditions. Obviously as a rule the mental defectives remain in the institution forming an increasing residue of refractory material. This is a necessity as things now are. It has been suggested that adult persons convicted of offenses be sent to a central institution which would be made a clearing house where they could be examined and classified and sent to their proper places of confinement. Our state schools for delinquents are showing a change in the character of their popula-

tion. In them, too, the number of mental defectives is increasing. In some, at least, the number of attractive children, the more promising ones, is decreasing. I wonder whether this is not due to the juvenile courts, where they go through a sifting process and the more hopeful cases are tested under probation. One superintendent recently remarked that their admissions under present conditions are the "toughest lot" they have ever had. Doubtless with proper medical and mental inspection such offenders will be identified and transferred to their proper places.

Dr. Emerick: I just want to say that Ohio has exactly such a law; that which provides for the new Bureau of Juvenile Research. Children sent to this bureau for investigation will be thoroughly studied. Mental tests will be given; physicians and other experts will study them, and, where possible, physical defects will be remedied; and family history will be looked up, and environment investigated. As a result, we hope to discover, in each case, just where the trouble lies—whether in bad environment, abnormal physical condition, or mental deficiency.

Mr. Butler: I am familiar with the methods in Ohio. When I was speaking I had reference not to the juvenile offender, but more particularly to the adult. I am interested in seeing a clearing house for adults.

THE DEFECTIVE DELINQUENT GIRL*

BY MARY STORER, *Columbus, Ohio.*

A study of the juvenile delinquent problem will show very soon that it presents a complication of at least four anti-social conditions—delinquency, low intelligence, bad inheritance and poor environment. The girls who find their way into the Juvenile Court and Industrial School are as a rule of average or of low intelligence. Those who work with them say that they very seldom find a girl of high intelligence among them. These are the girls who obey the compulsory school age law if they must, but evade it if possible. Many of them belong to the truant class. Many of them, also, get a permit to work, thus leaving school before they have reached the requisite grade. In looking up the school record of the juvenile offenders, it is found that a large per cent. of them are at least one year and oftener more than one year retarded in their school work. In a list of one hundred consecutive cases of juvenile offenders, we find that we have the school record of sixty-two. Among these sixty-two, forty-eight are three or more than three years retarded. Seventeen are not retarded or are less than three years retarded, and not one in the list of sixty-two is ahead of her age in school. Of the one hundred girls tested at the Girls' Industrial School, fifty-nine per cent. were found to be feeble-minded and only fourteen per cent. to be of normal intelligence. The rest, while not retarded enough to be called feeble-minded, did not measure up to normal intelligence. Miss Renz, who tested these girls, found that in regard to their school record, fifty per cent. were in the third and fourth grade. The median average age of these girls is fifteen years, the youngest age is eleven and the oldest eighteen. Since fifty per cent. are in the third and fourth grades, and since a normal girl of eleven should be in the sixth grade, with a median age of fifteen years, it is clear that the retardation is very great. A judgment of the retardation of these girls, based

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upon the normal school age of the youngest, eleven, will show that about seventy-five per cent. are one or more years retarded and that sixty per cent. of them are at least two years retarded. Miss Renz found only one girl in the list who had not attended school previous to her commitment to the Girls' Industrial School. With our compulsory school law, we may safely assume that a large per cent. of these girls have had ample opportunity to attend school. Miss Renz also found that fifty-four per cent. of these girls had failed of promotion three, four, five and six years. These girls quit school as soon as the law allows them, but they have neither the education nor the training to take their place in the world. Because of their lack of education, they must, perforce, work with their hands, and because of their lack of ambition in regard to acquiring the necessary training, they are forced to join the class of the least expert workers, and they thus become a very serious problem to society. If the girl is feeble-minded, another factor must be taken into account in estimating her economic value, and that is, that she is unable to work without a great deal of constant supervision. Many employers are loath to employ such workers.

These girls come, as a rule, from families of average or low intelligence, and of low social and economic status. The fathers of many of these girls are day laborers, and many of the mothers eke out the income by such work as day and laundry work. In the families of 159 consecutive juvenile offenders brought before a certain court, including first-time as well as old offenders, we find records of the occupations of 77 fathers, and of 11 mothers whose husbands are either dead or divorced. Of the 77 fathers, there are 32 laborers, 22 who are factory workers, 15 who have a definite trade, whether or not they follow it, and only 8 of them, or 10.4 per cent., do any kind of work involving much intelligence and responsibility. Among these 8 men, we find 1 clerk, 1 telegraph operator, 1 auditor, 1 contractor, 1 railroad conductor, 1 brakeman and 2 inspectors. Of the 11 mothers, 4 are laundresses, 1 keeps a boarding house, 1 is a hair dresser, 1 a seamstress, 1 washes and irons, 2 work in a factory, and 1 sells papers. Their homes are generally very poor, with poverty,

incompetence and shiftlessness plainly apparent. A child with poor food and clothing and unhealthy living apartments has a poor start toward a life of rectitude. Many of these children receive very little parental care. They are left to their own devices, and, because their home is unattractive, become street children. One often finds in juvenile court records such remarks about the parents as, "The parents are not themselves of bad repute, but they haven't very much force of character, tact or ability," or "The mother is a good worker, but she does not realize her responsibility as a mother," or "The father makes \$17.00 a week, but the family see very little of it. The mother is easy and has no control over the children." Often, too, we read of the home as "A low-type home," "Home very bad," "Bad home conditions."

The family record is often below par. We find too many times, records containing such charges against parents and fraternity as divorce, desertion, non-support, alcoholism, immorality, shiftlessness and aid from county, associated charities or other charitable agencies. In the records of the families of one hundred consecutive juvenile offenders in a certain city, we find that 23 homes are apparently normal, at least nothing is said against them in the records. Twenty of them are not normal because of the death of one or both parents, and 57 of them are sub-normal because of divorce, desertion, non-support, alcoholism, immorality, delinquency and criminality of parents and fraternity. Thirty of the one hundred families are registered with the Associated Charities of that city as having received aid from that organization, the District Nursing Association or the Diet Kitchen Association. Nineteen of these thirty families are in the list of the 57 sub-normal families. Very often we find that several of the fraternity are juvenile offenders. The information given in the commitment papers of the one hundred girls tested at the Girls' Industrial School is very vague and incomplete in regard to the parents as well as to the delinquency of the girls. But from the commitment papers of these one hundred girls, we found that 74 of them have enough information concerning the parents to show that in these 74 families the

home life is not normal. That is, one or both parents are dead, one or both parents are married again, the parents are divorced or have bad habits. Of these 74 girls, we find 38 who have a bad inheritance, that is, they have parents one or both of whom are immoral, alcoholic or criminalistic. Thirty of these 74 girls have both parents living, but only 11 have the parents living together. These families are a drag upon society, more or less. They exhibit such anti-social conditions as incompetence, shiftlessness, alcoholism, immorality, petty thieving, criminality in other forms, and we often find that some of the family have served terms in the work house, the county jail, the reformatory, the industrial schools and the penitentiary. In the records of the one hundred juvenile court cases (referred to before) there are such records as the following: "Parents in court for neglecting children;" "A brother in court for drunkenness;" "Mother's sister immoral and her son a delinquent;" "Father in work house for non-support;" "Mother in jail for adultery;" "Maternal uncle in work house for immoral relations with his niece, a feeble-minded girl;" "A brother in court for contributing to the delinquency of a young girl;" "Parents in court for disturbing the neighborhood;" "Mother and her sister given work house sentences for adultery;" "Uncle of mother a police character."

It is from such families that many of our juvenile delinquents come and it is the inheritance from such stock that we must consider in dealing with these people. Enough data has been gathered by Dr. Davenport and his field workers to show that immorality is a transmissible trait, and immorality is one of the common offenses of the juvenile delinquent girl. Of 48 consecutive cases of delinquent girls brought before a certain court, 20 of them, or 47.5 per cent. had been immoral, and 2, or 7 per cent. had immoral associates. Of 410 girls present at the Girls' Industrial School on a certain date, 197 had been immoral and 20 were charged with offenses tending to immorality, such as immoral associates, visiting grill rooms, wandering the streets at night, running away from home and living in rented rooms with no visible means of support. Of 641 girls on parole at the same time, 230 were guilty of immorality, and 46 of acts tending to immoral-

ity. In totalling these figures, we find that of the 1,051 girls under the supervision of the school (present and out on parole) 40.6 per cent. had actually been immoral, and 7.1 per cent. had been guilty of acts tending to immorality, making a total of 47.8 per cent. of the entire number of girls enrolled at this school as immoral or with immoral tendencies. The commitment papers are very definite about this one offense, and it has not been counted in the list of immoral acts unless so stated in the commitment papers. Hence, this per cent. is not too high, and if we knew just what incorrigible and delinquent mean in every case, this percentage would undoubtedly be higher. Of the 100 girls tested at the Girls' Industrial School, 32.65 per cent. were guilty of immorality, 32.65 per cent. of acts tending to immorality, making a total of 65.5 per cent. of girls immoral or with immoral tendencies. The true proportion of immorality among delinquent girls will probably be found between the two extremes, 47.8 per cent. and 65.5 per cent.

So here is our problem: A class of delinquent girls 59 per cent. of whom are probably feeble-minded, at least 47.8 per cent. of whom are immoral or have immoral tendencies, and probably 38 per cent of whom have a bad inheritance, and possibly 57 per cent, with a poor environment.

If our data is correct, out of the 100 girls tested, 38 of them show at least three anti-social conditions, delinquency, poor environment, and bad inheritance. What about the intelligence of these 38 girls? We find that 5 are of normal intelligence, 5 show a retardation of from one to three years, 9 belong to the indeterminate class and 19 are feeble-minded. So that 19 out of 100 delinquent girls present a problem for society to solve, and this problem shows a most pernicious combination of delinquency, bad inheritance, poor environment and feeble-mindedness. Now, what is the form of the delinquency of these 19 girls? Four of them are immoral, 10 have immoral tendencies, 2 are charged with incorrigibility, 2 with delinquency and one with profanity and truancy. Incorrigibility and delinquency are class names and may be taken to mean any or all of the various offenses for which girls are sent to the Girls' Industrial School. But giving

these two terms the benefit of the doubt, and placing them in the list not directly concerned with immorality, we still have 14 out of the 19 who are immoral or have immoral tendencies. This is probably a very conservative estimate of the percentage of delinquent girls who are unfit to take care of themselves among their normal fellows on account of their behavior, their inheritance, environment and intelligence. And yet every ten years there is being turned loose in this state, at least 140 women to do as they please, so long as they do not too seriously interfere with the comfort and pleasure of their fellows. They will not be able to earn their living, because of their defects, and will become parasites upon the community. They will undoubtedly have children, whether married or not, and with each succeeding generation, the problem will be enormously increased.

But this class of 14 girls, while representing the worst anti-social element we have to deal with among women, is only a small part of the feeble-minded girls found among delinquents. What about the other 45 of the 59 feeble-minded girls? These 45 present at least two anti-social conditions, delinquency and feeble-mindedness. Whether the delinquency has been immorality or something else, the fact is that every feeble-minded girl is potentially immoral. A feeble-minded person (unless an idiot) has a very strong sex instinct and in addition has little power of inhibition. These two factors explain why there is so much immorality among the feeble-minded. Every feeble-minded girl may become immoral in spite of the best training, care and influence. She may make all kinds of good resolutions, but yields to the first temptation.

While the 45 girls with the two anti-social traits do not present so serious a problem as the 14 with the very sinister combination of the four, they are nevertheless a great social menace, and their problem is almost as difficult to solve. We really must protect society from the 45 as well as the 14. How shall we do this? By sending them to the Girls' Industrial School until twenty-one, trying to effect by a few years' training and teaching, a change that many generations of social training has not made in their families, and then turning them loose? This is the

solution for the delinquent girl of normal intelligence and inheritance. We assume that if these girls are given a thorough training in such things as they must know in order to take care of themselves, and are kept under supervision until adolescence is passed, they will be able to behave themselves as they should and to take their places in the business world. Normal girls are capable of profiting by such instruction, but not the feeble-minded girl. A normal girl can be turned loose at twenty-one with chances very much in her favor that she will take care of herself, but society suffers whenever a feeble-minded person is released from supervision. Obviously, the feeble-minded girl must be protected all her life. Shall we send her to the feeble-minded institution? At our institution, we have many girls who were received in childhood, who are perfectly contented to remain here and who know little of sex matters. Their sex impulses are dormant but are with them nevertheless. What happens when a delinquent girl and especially one who has been immoral is put with these girls? She immediately becomes the center of a group to whom she relates her experiences, often very much exaggerated, the telling of which arouses slumbering impulses that result in making these girls dissatisfied with their life, and they, with the delinquents, become disturbers of the peace of the community to such an extent, that discipline becomes very difficult and a prison atmosphere is the index of the life, instead of the quiet home life previously enjoyed by these girls. Our girls are emotionally unstable at any time, but with the addition of the defective delinquent girl, the emotional tension becomes too high and many troublesome times are the consequence. It is not right to bring about such a change in the life of the feeble-minded girl who has been protected all her life and who knows little or nothing of the outside world, and because of her ignorance is perfectly contented to remain in the institution. Nor is it right to subject her to the same kind of discipline that is necessary for the defective delinquent. Both should be segregated, at least during the child-bearing period, but never together. For the girl who has had no experience in the world, and who has no longing to return to conditions of which she

knows nothing, but feels contented with her institutional home, a quiet home-life may easily be her lot. She may be trusted to remain without constant fear of her running away. The defective delinquent confined in the industrial school, knowing that her parole depends upon her behavior, is not such a difficult proposition. Nor is the feeble-minded girl who knows nothing about the world hard to manage. But the defective delinquent girl in the feeble-minded institution has to be constantly watched, for she remains only under compulsion.

In considering the question of how best to segregate these defective delinquent girls, two things must be remembered, first, she has had experiences in the world, the enjoyment of which she does not give up of her own accord, and to which, in the quiet and to her seemingly dull life of the institution, her thoughts will turn, and while she may know that these pleasures are not legitimate, she will long for the excitement and variety of her previous life; and, second, she will be confined for the rest, or at least, for the best part of her life against her will and very probably in opposition to the wishes of her family. These two factors will make the matter of institutional management and government a most difficult one. They will hinder rather than help the good behavior of the girls. And because they know that good behavior will not secure their release and they must remain during life, they will require constant supervision and provision against escape. It is not right to subject the contented feeble-minded girl, who is still a child in experience as well as in intellect, to such a regime of locked doors, barred windows and an atmosphere of suspicion.

A BRIEF REPORT ON TWO CASES OF CRIMINAL IM- BECILITY*

BY H. H. GODDARD, Ph. D., *Vineland, New Jersey.*

These cases are probably epoch-making in that they are the first instances in judicial procedure in which so high a grade of mental defectiveness has been recognized by the court. Heretofore the question of responsibility has never been raised in such cases.

The first case is that of a sixteen-year-old boy in Poland, Herkimer county, New York. He was indicted and tried for the killing of a school teacher in the town of Poland. The day after the tragedy he confessed to the deed and described with considerable detail his procedure. With the aid of his confession the prosecution was able to weave about the case sufficient circumstantial evidence to make it clear that there was no denying the fact. The case made out by the prosecution was somewhat as follows: The boy had been to school to this teacher a year previous to the murder; since leaving her school he had attended a Catholic boarding school in Utica for approximately six months, for the rest of the year he had been working. He was known as a bad boy in the neighborhood, given to running away and going to moving pictures, and at one time going as far as New York City. He claimed that he committed the deed for the sake of revenge; that while attending school to this teacher she had punished him and disgraced him and he wanted to get even. He accordingly, so the prosecution claimed, laid a careful plan to entrap her; he pretended that he wanted to return to school and wanted her to visit his father and persuade his father to allow him to return. He had once or twice asked her when she was coming to see his father, but she had put him off until the night of the tragedy when she finally consented to go with him. When they reached his

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father's house he said that his father did not live there now but was building a new house farther up the hill and asked her to go up there. Although it was dark and raining and the roads were filled with snow and slush she accompanied him to a point nearly a mile distant, and there he says that she began to be suspicious perhaps, at least she said she thought she would go no further, and then he struck her with an old rusty wrench and afterward cut her until she bled to death. He dragged the body outside of the road and left it in the field, went home and went to bed, sleeping soundly. The next morning he went to work as usual but after an hour or two left and went down the railroad track to the nearest town. His employer reported to his father that he had left his work and as this was a common occurrence his father sent for him and had him brought back. In the meantime the body of the dead girl had been found and various things pointed somewhat suspiciously to the boy and he was arrested, taken before the justice and there confessed to the facts above given.

From the account of the case Dr. Bernstein, whose institution is not far from the scene of the tragedy, was suspicious that the boy was mentally defective. He suggested this to the counsel for the defense with the result that they called in Dr. Carlos McDonald, Dr. Bernstein and myself, to examine the boy and make a decision. Each of us came to the conclusion, independently of the others, that the boy was definitely feeble-minded. I gave him the Binet-Simon test and he showed a mentality of between 10 and 11. I was unable to make it closely accurate because he had already been examined by the alienists for the prosecution; the prosecution having surmised that the defense would be insanity called their own experts to prove that the boy was sane. We were able to bring the Binet tests into court and thus give them legal recognition. Although the prosecution made every attempt to break down the tests he was unsuccessful and the jury brought in a verdict of "not guilty as charged in the indictment on account of criminal imbecility."

My own findings so far the Binet tests were concerned, were strongly fortified and substantiated by observations made

on the boy and by his whole record, both his own history and that of his family. The mother died of melancholia, the first child was a distinct idiot, the second one, however, was normal; the mother was also alcoholic for some years before she died. Witnesses testified to many actions and deeds of the boy's youth which indicated mental deficiency.

A nice point in law came up in connection with the New York law code, as to whether the boy knew the nature and quality of his act, and whether he knew that it was wrong. Thinking that the nature and quality of the act referred to the state of mind in the insane, in which they do not know what they are doing, I testified that he did know the nature and quality but that he did not know that it was wrong. Upon more mature deliberation and understanding of the terms "nature and quality" which I am told on good legal authority are used in a very technical legal sense, I have since come to the conclusion that he did not know the nature and quality of his act as meant by the terms in the code, and I am entirely satisfied that such a boy does not know the act as wrong. He may be able to say that it is wrong as a mere matter of verbal repetition, repeating what he had heard others say, but as for having a realizing sense of the wrongfulness of the deed, I am satisfied that no imbecile or moron of his grade has any such knowledge.

Moreover, the boy's school experience was extremely interesting. Up to and through the fifth grade he got along very well in school; he belongs to the loquacious type of defective with a good memory, has been able to learn to read and had read by himself a great deal. The testimony showed that when he entered the room of his teacher whom he finally murdered, he did not get along so well. It was thought that the trouble was due to the teacher. It is perfectly clear to one cognizant of the nature and character of imbecility that he had reached his limit of mental capacity at the end of the fifth grade and was incapable of doing sixth grade work; hence, his failure was not due to the incapacity of his teacher but to his own mental limitations.

The second case soon to be tried is somewhat similar, al-

though in this case the boy had an accomplice who indeed was the leader in the tragedy. He simply made a dupe of this feeble-minded boy who was nineteen years old but whose whole history showed his mental defect. He also tested about 11 and his school experience was that he got through the fifth grade but tried for two years and a half to do sixth grade work and failed. It is a most interesting case of suggestion; the older and more cunning man had a motive for the crime and tried to arouse a motive in the boy by stirring up his cupidity, by telling him the victim had a large sum of money on his person. By adroit suggestion he persuaded the boy to strike the man with a blackjack and then he himself came in and finished the deed by kicking the man in the head and on other parts of the body. It should be easier to prove this boy imbecile than the other, for while they are of the same grade he is a different type and his imbecility is more obvious to the layman than in the case of the first boy. What is to be the outcome remains to be seen.¹

DISCUSSION

Dr. E. J. Emerick, Columbus, Ohio: I was much interested in what Dr. Goddard said. I feel that the feeble-minded boy could not have premeditated the crime.

Dr. G. Wallace, Wrentham, Massachusetts: I do not believe that he thinks the boy did. I had a very unique experience a few days ago. One of my boys told me that the florist was stealing potatoes. I had a great deal of faith in the man and did not like to believe the boy, but he told his story in detail. He said "he is pretty smooth about it." I missed some potatoes. Another boy said he saw the florist steal some. I did not want to believe it, but thought it might be true. I called the florist to me and asked him about it. He said, "Bob, you know you lie; you know you took those potatoes."

Dr. A. C. Rogers, Faribault, Minnesota: I do not think there is any question about the feeble-minded premeditating.

¹ Since the above report the trial has come off and the lawyers for the defense failed to make their case. The jury convicted the boy of murder in the first degree. They had also previously convicted his confederate.

but there are characteristics such as those Dr. Goddard referred to that are typical of the feeble-minded, such as overlooking the little details in the disposition of the body, and lack of comprehension of the consequences.

Dr. Charles Bernstein, Rome, New York: The boy had run away from home two or three times. He did not go to school regularly. While in St. Vincents he confessed to a plan to kill a laundryman with a monkey wrench. He found an old monkey wrench by a barn, and carried it around with him. He saw this girl three different times and asked her to go up the road with him. The jury was impressed with the story that he stabbed her thirty-five times, with only one mortal wound. He took her by the right leg and pulled her to one side. He did not want to get blood on himself. Think of the boy tugging at that body! The boy went home after the deed, did an errand, read his paper, went to bed and slept well. The next morning he took a walk down the track. He hears men discussing the murder while he sits in a store eating peanuts and smoking cigarettes. These were the things that impressed the jury.

Dr. W. E. Fernald, Waverley, Massachusetts: Did the boy show any evidence of defect?

Dr. Bernstein: He was small in stature, with a suggestion of cretinism. Cranial capacity was very small, with receding forehead, lack of occipital development, Darwinian tubercles on his ears, automatic swinging of foot, and chewing gum. His school record had been quite good in physiology, geography and history, but poor in arithmetic and grammar. He could not analyze.

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REVIEWS AND NOTICES

FEEBLE-MINDEDNESS AT THE FOURTH INTERNATIONAL CONGRESS OF SCHOOL HYGIENE, BUFFALO, NEW YORK, 1913

The Present Attitude of the Bureau of Child Hygiene of the City of Buffalo Towards the Defective Child. F. W. BARROWS. *Transactions, Vol. III, Pp. 419-423.*

The Medical Inspector and Feeble-Mindedness. W. S. CORNELL. *Transactions, Vol. V, Pp. 609-613.*

The Results of Applied Therapeutics to So-called Mentally Deficient Children. J. J. CRONIN. *Transactions, Vol. III, Pp. 444-485.*

The Place of the School in the Problem of Mental Deficiency.

ELIZABETH E. FARRELL. *Transactions, Vol. III, Pp. 435-443.*

The Subnormal Child. F. E. FRONCZAK. *Transactions, Vol. III, Pp. 492-496.*

The University in Relation to the Problems of Mental Deficiency.

A. GESELL. *Transactions, Vol. V, Pp. 614-620.*

Who is Mentally Deficient—How Many Are There—and How Can They Be Detected? H. H. GODDARD. *Transactions, Vol. V, Pp. 621-628.*

Can the Mentally Defective Child Be Educated in the Public Schools? HELEN MACMURCHY. *Transactions, Vol. III, Pp. 486-491.*

Some Potent Factors in the Seeming Increase in Mental Defect.

ISABELLE T. SMART. *Transactions, Vol. V, Pp. 532-538.*

The Transactions of the Fourth International Congress on School Hygiene, convened at Buffalo, New York, in August, 1913, are published in five volumes of six to seven hundred pages each. The nine papers listed here deal directly with the subject of feeble-mindedness in the public schools. Some other papers touch on the subject indirectly, but the whole does not total a hundred pages in all. This represents a rather scant recognition of the subject as compared with its importance to the schools. It undoubtedly reflects the fact that the public schools on the whole still do not realize fully the extent of feeble-mindedness among public school children and the problems their presence raises for the schools. However, some of the papers show a hopeful progress, at least in some localities. Barrows argues against the sentimentality of calling the really feeble-minded by disguised names, such as "backward," "ungraded pupils," etc. He suggests that the school system should locate every feeble-minded child in the city by name and address, and keep these on record. Farrell holds that "The public schools should be the clearing house for all knowledge relating to the development of children which in any way affects the community interest," and that "the school holds the strategic place in solving the problems of mental deficiency." Because the public schools are at present not vested with authority to commit feeble-minded children in public schools to special institutions for the feeble-minded the latter are assured further generations of inmates. A plan is recommended to establish classes for the feeble-minded in the public schools, where they are to be kept until later childhood, and then committed to the special institution by a state board of physicians, educators, sociologists, and psychologists, which is to pass on all commitments. This gives the child a thorough trial, leaves him in the care of the parents until sexual maturity, and lessens the state expense. MacMurchy

regards the special classes as an indispensable part of the modern school system. In addition to their regular functions, they should furnish a means of finding the feeble-minded, for which class they should be the clearing house, to commit them to a permanent home and school of the colony or village type. Cornell discusses the qualifications of the medical inspector. The average physician does poor or mediocre work at first with mental defectives. A special training is required. He should have a knowledge of the factors which cause mental deficiency, and of the clinical evidence of mental deficiency. It involves sociology, psychology and medicine. He must also have the right temperament and disposition to handle children. Gesell points out that the University may deal with the problems of feeble-mindedness in three ways. (1) Through University research and extension departments in connection with institutions for defectives. (2) Through psycho-educational clinics and normal training courses in connection with University departments of psychology and education. (3) Through five-year medical courses specializing in child hygiene. Goddard accepts the definition of feeble-mindedness given by the Royal Commission. He repeats his statement that two per cent. of the public school children are feeble-minded, and that the Binet-Simon tests in the hands of one who understands them are adequate for determining whether a given case is feeble-minded or not.

Faribault, Minnesota.

F. KUHLMANN.

THE BINET-SIMON TESTS AT THE FOURTH INTERNATIONAL CONGRESS OF SCHOOL HYGIENE AT BUFFALO, NEW YORK, 1913

Recognition of Mental Defect in the Higher Grades. W. E. FERNALD. *Transactions, Vol. III, Pp. 543-552.*

The Degree of Mental Deficiency in Children as Expressed by the Relation of Age to Mental Age. F. KUHLMANN. *Transactions, Vol. V, Pp. 629-636.*

The Value to Be Derived from Giving Mental Tests to All School Children. W. H. PYLE. *Transactions, Vol. V, Pp. 637-641.*

Some Theses Regarding the Scientific Use of the Binet Scale for Measuring Intelligence. O. BOBERTAG. *Transactions, Vol. V, Pp. 642-644.*

Some Requirements of Graded Mental Tests. CARRIE R. SQUIRE. *Transactions, Vol. V, Pp. 645-648.*

Some Limitations of the Binet-Simon Tests of Intelligence. CHAS. S. BERRY. *Transactions, Vol. V, Pp. 649-654.*

A Comparison of White and Colored Children Measured by the Binet Scale of Intelligence. J. MORSE. *Transactions, Vol. V, Pp. 655-664.*

Suggestions on the Extension of the Binet-Simon Measuring Scale. E. A. DOLL. *Transactions, Vol. V, Pp. 665-669.*

The Use of the Binet Scale with Delinquent Children. GRACE M. FERNALD. *Transactions, Vol. V, Pp. 670-677.*

Current Misconceptions in Regard to The Functions of Binet Testing and of Amateur Psychological Testers. J. E. WALLIN. *Transactions, Vol. V, Pp. 678-689.*

Some Dutch Experiences with the Binet Scale. A. J. SCHREUDER. *Transactions, Vol. V, Pp. 690-692.*

The Reliability of the Binet-Simon Measuring Scale of Intelligence. H. H. GODDARD. *Transactions, Vol. V, Pp. 693-699.*

Suggestions for Revising, Extending, and Supplementing the Binet Intelligence Tests. L. M. TERMAN. *Transactions, Vol. V, Pp. 700-707.*

W. E. Fernald outlines a plan for a clinical examination to determine the grade of intelligence. He believes the Binet-Simon tests to be inadequate for the determination of the grade of intelligence of adolescents near the borderline of normal intelligence. Kuhlmann points out that the mental age alone, or the difference between age and mental age does not alone express the grade of intelligence in the case of children, and discusses the intelligence quotient, or mental age divided by age, as a truer index of grade of intelligence. Pyle argues that group tests might be used to rapidly examine all the children of a school system, and that those found by these group tests to vary much from the average normal might then be tested individually. He discusses some group tests used by him for this purpose. The test results should be used as a guide in adjusting kind of work and method of teaching to individual children found to vary from the average. Bobertag notes that but little of the results of the extensive work done with the Binet-Simon tests is of scientific value, and lays down a number of things that users of the tests should observe to remedy this. Squire summarizes some defects of the tests. The chief defect, she thinks, lies in the fact that the same or similar tests are not kept from one age group to the next, thus not making the tests comparable, age for age. Secondly, they test acquired knowledge as well as native ability. Thirdly, they are

affected too much by language ability. Fourthly, they should test separate capacities and functions. Fifthly, the procedure in giving them should be standardized. Berry thinks that in order to make the tests of equal value those depending largely on experience should be eliminated. The tests for the higher ages are too difficult. The absence of tests for the ages of eleven, thirteen, and fourteen makes it impossible to estimate mental ages from ten to fifteen accurately. The mode of procedure should be standardized. Morse reports the results of an examination of 123 colored and 225 white children by a graduate student. Children of varying ability were selected by the teachers to make them representative. He finds ten per cent. of the white, and twenty-nine per cent. of the colored children retarded over one year, and eighty-four per cent. of the white, and seventy per cent. of the colored satisfactory. Dividing the white into "mill" and "city" children, shows the mill children inferior to the city children, but superior to the colored. Doll notes that the scale of tests can not measure accurately beyond the mental age of ten. He discusses a number of reasons why it might be supposed that tests of intelligence of adolescents and adults cannot be devised, but does not consider them insurmountable. In devising tests the following should be considered: (1) There should be a definite knowledge, or clear hypothesis of the psychology of the age levels considered. (2) There should be a careful selection of those mental functions essential or contributory to intelligence, and then subject these to experimentation. (3) Objective tests should be selected accordingly, tried out, and the satisfactory ones standardized. He gives a list of twelve characteristics such tests should have. Grace M. Fernald thinks that the tests may work well with the average school case, but that they do not do so with the delinquent with little or no school training. Tests of the motor-game type should be added in place of those of the abstract, school type. The absence of tests for ages beyond twelve particularly affects the testing of delinquents. Wallin discusses what he thinks are misunderstandings about what the tests can accomplish, and about the ability of untrained examiners to use them. Schreuder reports the results of examining 141 Dutch school children, aged six to twelve years. They show the scale to be too easy at the lower end and too difficult at the upper end. It is also found that boys vary more from an average intelligence than do girls. Goddard argues for the accuracy of the scale for practical purposes and thinks that for the ages of three to twelve the tests hardly need improvement. More uniformity in the use of the scale by different testers is called for. Terman discusses (1) the selection of children for standardizing the tests;

(2) the question of age grouping; (3) the per cent. of correct responses necessary for placing a test in its age group; (4) the needed shifting of tests; (5) criteria for the elimination and substitution of tests; (6) desirable number of tests per age group. The scale of tests should be extended at both ends, and other tests added throughout. The value of a scale of pedagogical tests to aid in interpreting the results of the intelligence tests is suggested.

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The Mental Health of the School Child. The Psycho-Educational Clinic in Relation to Child Welfare. Contributions to a new Science of Orthophrenics and Orthosmatics. J. E. WALLACE WALLIN, Ph. D. New Haven: Yale University Press, 1914. Pp. XIII+463.

This book of nineteen chapters is a collection of twelve reprinted articles, five old papers not published before, and two new chapters. Four chapters deal with clinical psychology as a new science, its nature, functions, present status and contributions. Four others discuss mental examinations, in particular the Binet-Simon tests, and the mental examiner. Four chapters deal with the physical welfare and physical defects of school children. Two treat of medical inspection, and two others of what the schools are doing in the direction of promoting child welfare. A final chapter gives a scheme for the clinical examination of children. These collected papers "aim to show in slight measure the aid which the practical psychologists and expert educational consultants hope to render in the important work of diagnosing, identifying, studying and training feeble-minded, backward and mentally abnormal children in the schools." A history and survey of the work in clinical psychology in this country leads to the conclusion that the field is not yet clearly defined, and that the necessary qualifications of the psycho-clinician are not sufficiently understood. Psycho-clinical work is largely in the hands of physicians, and psychologists with no special training for it. Mental examination in the public schools is in the great majority of cases limited to the use of the Binet tests by amateurs not at all qualified for the work. The function of the psychological clinic is given as fourfold. (1) Expert diagnosis of mentally deviating cases and expert prescription and consultation. (2) "The second purpose of the psychological clinic is to serve as a clearing house for mentally exceptional cases." It has no special interest in normal children. (3) "Research, particularly with a view to increasing and perfecting diagnostic tests and to extending our knowledge of the nature causes and treatment of mental abnormalities." (4) "The dissemination of reliable information and knowledge regarding the condition and needs of the mentally abnormal classes." The organization of the clinic

for large cities includes six classes of workers. (1) One director of the clinic and department of special education directly responsible to the superintendent of schools. (2) One supervisor of special education, responsible to the director. (3) One or more social workers. (4) "One or more mental testers for some of the routine testing." (5) "One medical man, to serve as a 'clearing house,' or general utility man on the medical side." (6) One or more clerks. Which of the above functions of the clinic belongs to each of these six members of the clinic's staff is not specifically stated.

A mental diagnosis involves both a laboratory and clinical study. Its results must give the general mental level, and a comprehensive psycho-clinical picture of the case. It must differentiate types and trace symptoms to causes. There are many aspects of mental deviation which formal testing alone does not reveal. To become a clinical psychologist requires a special training. "The general practitioner, pediatrician, orthopedist, neurologist, psychiatrist, educational, experimental, genetic or abnormal psychologist is lacking in some of the essentials which the expert psycho-clinician must possess." He must have an expert knowledge of general, experimental, educational, genetic and abnormal psychology, and of child study. He must have in addition a thorough training in psycho-clinical procedure, including work in a laboratory clinic and a year's internship in the first-hand study of backward, feeble-minded, epileptic, psycho-pathic and disciplinary cases; also a thorough training in educational therapeutics, the differential, corrective pedagogics of the educational expert on mentally deviating children. The Binet-Simon scale is only one of many diagnostic devices at the command of the trained clinical psychologist, and no system of formal intelligence tests yet devised can be used as an infallible measuring rod of intelligence. The tests have many imperfections, but are a step in advance, and of considerable value to the trained examiner. "They provide a fairly impersonal and uniform method by which to grade or classify, with a fair degree of accuracy, institutional and school cases relatively to one another." In the hands of the expert it is "a surprisingly serviceable means of classifying homogeneous masses or groups of individuals." The 1908 scale should be used in preference to any of the several revisions that have appeared, "until an extensive mass of clinical data is available for a thoroughly scientific revision of the scale." The manner in which these revisions have been made is especially criticised, calling forth the statement that "Superficial work like this is misleading and tends to arouse contempt for the slipshod standards of scientific work obtaining in this field of applied psychology. Worst of all, these scales, because of the claims made as to their reliability, are appropriated and used by large numbers of uncritical Binet testers who are neither psychologists nor scientists and thereby pupils are judged or stigmatized on the basis of unproved assumptions." The number of tests for each age-group should be increased to ten. The present number measures too few traits to insure our striking a fair average for the whole. For the younger children

tests for half years should be included. To establish reliable norms not less than a hundred cases of each sex for each age-group should be tested, and these cases must be normal children. The tests should be given to the children individually, for group tests do not give reliable norms. The tests need standardization of administrative procedure. In order that the results obtained may be reliable the tester must have the training of a clinical psychologist. Results of testing by amateurs are probably not more reliable than ordinary class-room standards for determining pedagogical retardation.

The general program for the promotion of child welfare is given chiefly in the twelfth chapter, on "The Euthenical and Eugenical Aspects of Infant and Child Orthogenesis." The physical and mental development of every child during its entire growth period should be in charge of the community, controlled through the schools and other public institutions. To accomplish this end six measures are laid down. (1) Every child on entering school should be given physical and mental examinations by expert examiners. (2) Appropriate treatment should be given all children deviating from the normal. (3) "Specially trained teachers and special classes or institutions should be provided for the mental and physical deviates." (4) For all children health and mental education should receive equal emphasis. (5) Socially and mentally incompetent children should be permanently segregated in colonies, unless adequate protective oversight is insured in the home. (6) Medical and psychological work should aim to prevent more than to cure defects. The measures usually advocated by eugenicists are for the most part accepted as ideal from the eugenical standpoint, but a number of difficulties in practice are pointed out. (1) The sexual emotions are the subjective side of instincts that are biologically fixed. There is no instinctive repulsion to anti-eugenical matings, and it is questionable whether this can be aroused through teachings and prohibitions. A racial instinct of sexual modesty opposes sexual health examinations, and maternal and filial instincts oppose the colonization of the eugenically unfit. (2) Public sentiment will not sanction the colonization of all misfits. (3) There are no adequate means of determining who are eugenically fit and unfit. (4) Eugenical research is needed. Following chapters are on "Experimental Oral Orthogenics," "The Relation of Oral Hygiene to Efficient Mentation," "Methods of Measuring the Orthophrenic Effects of the Removal of Physical Handicaps," "Medical and Dental Inspection in the Cleveland Schools." The first of these discusses the results of an experimental study on the mental effects of dental treatment of a group of children, and will be considered further in a moment. A chapter on "Efficiency in School Organization and the Conservation of the Mental Health of Children" gives twelve case histories of different types of deviates among school children, and comes to six conclusions, all of which, however, have already been noted in connection with other topics. Chapter XVIII on "Public School Provisions for Mentally Unusual Children" discusses results obtained in answer to a questionnaire sent to pub-

lic school superintendents, replies from 302 cities having been received.

The reader who has been following developments along the lines of which this book treats will have some things to criticise. As a systematic treatment of one central theme the book is disappointing, as all collections of reprints and old unpublished papers are apt to be. It lacks an organized plan and unity, and is full of needless repetitions. It represents largely a miscellaneous collection of personal opinions of the author whose experience has been rather too brief and limited in the many fields of inquiry discussed to command the weight of authority. The author's failure to consider the literature previously published, and the copious advice, suggestions, and plans given leave the impression of the unscholarly and amateurish. A list of references to literature is given in only three out of the nineteen chapters, and only several of those in the list are referred to in the text. The topics for these chapters are: "The New Clinical Psychology, and the Psycho-clinician;" "Individual and Group Efficiency;" and "Medical and Dental Inspection in the Cleveland Schools." Why the reader should be referred to literature on these particular topics and not to literature on the others is not clear. A chapter on "The Present Status of the Binet-Simon Graded Tests of Intelligence" gives no list of references, and only three foot-notes to literature, all of which refer to a study previously published, and reprinted in this book, by the author. Out of several hundred publications that should have been consulted for this chapter one of the author's own is singled out, to which more than half of the nine pages of this chapter is devoted. This study gives the results of examining 333 *epileptics*, and from this the status of the tests is judged. The author's strong and continuous plea for higher standards of scientific work in mental diagnosis, and for a better training for mental examiners is in itself commendable enough, but it is in part misleading, and involves some erroneous assumptions. To qualify as a reliable mental examiner one must be an expert clinical psychologist, apparently, but when we note his enumeration of the qualifications of the expert clinical psychologist it becomes obvious that either no such person at present exists or else "expertness" is taken in a rather loose sense. The author could not qualify as an expert according to his own definition. We are told that the Binet-Simon tests is only one of many means the expert has at hand for making a mental diagnosis; that other mental tests, and a clinical study of the case must be made to constitute a reliable diagnosis. But no such other tests with established norms are given by the author, and when we come to his final chapter presenting his schema for the clinical study of children we find nothing essentially different from a score of such schema in which the literature has abounded for years, but which have never proven of great value in practical work. If the author had presented such other tests, with their manner of use, and had shown us definitely how the clinical data called for in his schema could be gathered and utilized in making a mental diagnosis some contribution would have been made. But we are given instead the assurance simply that this matter may be left to the expertness

of the clinical psychologist. Practically all other psychologists of experience with the Binet-Simon tests who give their opinion testify that the tests should be at least a great aid to any teacher in arriving at a better knowledge of a child's intelligence. Dr. Wallin, however, is convinced that the results of such amateur testers are not of much greater value for this purpose than the regular school records already existing. He insists that the general and technical training of the psychologist are necessary to make a reliable Binet-Simon tester, a kind of dogmatism that he severely criticises in other students of the Binet-Simon tests. The reviewer's actual experience, agreeing with that of others, positively and emphatically disproves this assumption. The several revisions of the tests that have appeared by different authors are all criticised as unreliable, and apparently as poorer than the original that was revised, since the fact is lamented that the revisions, because of the claims made as to their reliability, are used by uncritical and uninformed testers. This is a serious charge. It is unfair to the revisers if the inference is intended that they are making great and immodest claims for their revisions. Each claims that he has made an improvement over the original, and no impartial reader will deny that this much is proven. But let us note the author's reasons for regarding the revisions all as unreliable. They are because (1) selected normal children have not been used to obtain the norms; (2) there has not been an extensive number of cases examined for every age; (3) the children have not just passed their birthdays at the time of examination; (4) his so-called wide range method of testing was not used. We may grant all these statements as true. They are mostly irrelevant and all misleading in their implications. That the author should regard them as proof that the revisions are unreliable and no improvement over the original shows rather that he has not followed the analysis of the results on which the revisions are based, and that he is lamentably ignorant of the theory and technique of a scale of tests like that of Binet-Simon.

The book contains two chapters on the results of two experimental studies. One gives the results of examining 333 epileptics with the Binet-Simon tests; the other gives the results in the use of special mental tests before and after dental treatment of 27 school children. These two chapters give us a means of noting how the author lives up to the high standards he has set up in other chapters. It has already been noted that a number of pages are devoted to discussing defects in the Binet-Simon tests on the basis of results obtained in examining epileptics. These epileptics were nearly all feeble-minded, and he has only 333 for all ages included. The epileptic has a special type of mind which causes exceedingly irregular results in Binet-Simon testing. Apparently the author has not discovered this fact, or regards it as irrelevant. I have always excluded results from the epileptic as worthless in discussing accuracy of the Binet-Simon tests. Yet the author laments that "in one case a revision has been made on the performance of feeble-minded persons." (If he had said that in the case of one revision a few of the changes made were based on the performance of

feeble-minded this statement would have been correct), and that "in no case are they (the revisions) based on the performances of *selected normal* children." A comparison made between the epileptics and feeble-minded, and conclusions as to the relative frequency of the different grades of intelligence in each is also interesting. He has examined the inmates of one institution for epileptics and compares them with the inmates of the Vineland (N. J.) School for Feeble-minded. He concludes that "The typical epileptic category is that of the condition of moronity, * * * * while the typical feeble-minded station is that of imbecility," because morons are most numerous of any grade among the epileptics of this institution, and imbeciles are most numerous among the feeble-minded at Vineland. Alas for the profession that this should come from the "expert clinical psychologist!" That the epileptic sent to an institution might be selected cases in any serious degree he does not think likely, and that possibly moron feeble-minded are not sent to an institution with the same relative frequency as are the lower grades he does not mention.

We may turn to his experimental study attempting "to determine by controlled, objective, mental measures the influence of hygienic and operative dental treatment upon the intellectual efficiency and working capacity of a squad of twenty-seven public school children." The following five tests were used: (1) Memorizing ten three-place numbers for forty-five seconds shown on a cardboard to the class. (2) A spontaneous association test, by giving each pupil a column of thirty simple words, and telling the pupils to write the first suggestion for each word for eighty-five seconds. (3) A controlled association test, in which the pupils wrote for each word of twenty-five one that meant just the opposite. (4) An adding test in which the pupils added columns of ten one-place digits. (5) The "A-Test," in which the pupils crossed out the A's of a pied page for 100 seconds. Six series of each of these tests were made up. The first and second series of each were given before dental treatment. "The last two tests (series) were given from three to five months after the dental treatment had been completed for all the pupils, while tests 3 and 4 were given only one or two months after the beginning of the treatment for more than half the pupils." All were given as group tests by the author "or by proxy." Besides the dental treatment itself these pupils were given instruction on oral hygiene and correct habits of eating, and a nurse followed up the cases, giving individual instruction to parents and pupils, and noted whether the instructions were being followed. This is the experiment and its conditions. Does it meet the standards of accurate scientific work set up for others by the author? Let us apply them. First, as to the tests themselves. Are they of such a nature as to measure small differences in intellectual efficiency and working capacity? They would have to measure small differences, equal to considerably less than a year of normal mental development, for no one would expect very large improvements in the course of several months following dental treatment. But we do not know whether they measure intellectual efficiency at all, for no norms

at all are given. That any one of them alone reliably measures small differences is surely an unwarrantable assumption. Only five different tests were used. We recall the author's statement that in the Binet-Simon scale the number of tests for each age-group should be increased from five to ten in order to make those tests reliable. Yet the Binet-Simon scale does not attempt to measure differences smaller than that between two consecutive whole years of normal development, and it measures this difference not with the five tests of one age-group alone, but with several age-groups, or twenty-five to thirty tests. Second, the procedure in giving the tests. These tests were not given to the pupils individually, but were group tests. The author has warned us before that the results of group tests are not reliable. He has insisted that in order that the results of any test may be reliable the test must be given by a trained psychologist. These tests were given by the author or by proxy, and he does not tell us anything further about the proxy. The statement as to the time interval between dental treatment and the giving of the several series of mental tests is very indefinite. If these intervals varied irregularly from one to two months for the third and fourth series and from three to five months for the last two series, it was a poor control of this factor. Third, the pupils tested. Pupils with dental defects were tested before and after dental treatment, but no similar group without dental treatment were tested for control. What can we infer at all from these test results without such a control? Only twenty-seven pupils were tested, but the author told us that in order to establish reliable norms for the Binet-Simon tests not less than a hundred cases for each sex for each age must be tested. Fourth, the elimination of other factors that might have the same influence as the dental treatment. The aim of the experiment was to determine the degree of influence of the dental treatment. But these pupils received not only dental treatment, as was noted. Can we assume that their general effort in both school work and in the tests, and the assistance and encouragement from parents and home would be left entirely unaffected when so much ado is suddenly made over them? If the tests after the dental treatment showed improvement, to what can we attribute it? Possibly to the dental treatment, possibly to these other changed conditions, possibly to the natural improvement that would have taken place if nothing had been done with the pupils at all, and so the results can prove nothing. Yet from such an experiment, made under such conditions, and in the midst of scathing criticisms from the author of the methods of others, several pages of conclusions are drawn. These are, in a word, that the beneficial influence of dental treatment on mental efficiency has been demonstrated; that there are no important sex differences; that there are no important age differences; that the improvement is sometimes general, and sometimes along one or two lines only, as shown by the different results of the five different tests; and finally, that "The conclusions which follow from the results of this research are of far-reaching importance to the state and nation." The reader of this chapter cannot help but be reminded of the following statement in

the Preface: "Owing to these misconceptions (as to the value of the results of amateur Binet-Simon testers) we are today tolerating and fostering a type of work in applied psychology which often is scientifically barren and sometimes positively pernicious." Or again, in a later chapter when speaking of different revisions of the Binet-Simon tests that others have published: "Superficial work like this is misleading and tends to arouse contempt for the slipshod standards of scientific work obtaining in this field of applied psychology."

Faribault, Minnesota.

F. KUHLMANN.



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CONTENTS

A State's Policy Toward the Care of the Feeble-Minded.—By Charles Bernstein, M. D., Rome, New York.	51
Ungraded Class Work in New York City—Methods and Results.—By Elizabeth A. Walsh, New York City.	59
Special Schools Versus Special Classes.—By Mrs. Cordelia Creswell, Grand Rapids, Mich.	67
Review of Meumann on Tests of Endowment.—By Lewis M. Terman, Stanford University California.	75
An Anaylsis of Dr. Kuhlmann's Attack on "The Mental Health of the School Child"—By J. E. Wallace Wallin, Psycho-Educational Clinic, Board of Education, St. Louis.	95
Minutes.	108
Reviews and Notices.	117

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A STATE'S POLICY TOWARDS THE CARE OF THE FEEBLE-MINDED¹

BY CHARLES BERNSTEIN, M. D., *Rome, New York.*

At the request of charity workers in the State of New York we have prepared the following outline of a scheme for legislation to provide at once for state care for all feeble-minded in New York State.

1. Legislation providing for the care of all feeble-minded children needing public aid in unoccupied orphan asylums throughout the state (at present the orphan asylums are not filled as the result of the large placing-out of orphans, and thus certain of these orphan asylums might be set aside for the care of feeble-minded children under the age of fourteen, where they could be taught and trained), thus leaving vacancies in our present institutions for the feeble-minded, for some six hundred adult cases, these vacancies being created by transferring the children under fourteen years of age to the vacated orphan asylums set aside for that purpose.

2. Legislation providing for the care of all delinquent and dependent custodial classes of feeble-minded in State Institutions, the same as the legislation that was enacted in 1893 for all of the insane.

¹ Read at the meeting of the American Association for the Study of the Feeble-Minded, Columbus, Ohio, June, 1914.

With the above legislation and the enlargement and completion of Letchworth Village and the Rome State Custodial Asylum, and the creation of another like institution in southwestern New York, together with the creation of a number of farm colonies for adult feeble-minded males, provision will be made for six thousand feeble-minded, in addition to the four thousand now provided for, and thus a large start made toward the custodial care of all the feeble-minded adults in the state who are at once available for such care.

If such as outlined above is provided, it will relieve the crowded condition at Elmira Reformatory, also the various reformatories for boys and girls and women, as well as largely relieve the overcrowded condition at some of the State Prisons, in all of which institutions a number of feeble-minded criminals are committed and confined because there is no other place for them.

In Northern Oneida and Lewis Counties there are a great many farms, which are listed by the New York State Department of Agriculture as abandoned or undeveloped, ranging in value from one thousand to fifteen hundred dollars for one hundred acres, and while the buildings on these farms are somewhat run down, still these buildings could be cheaply improved to accommodate custodial boys in farm groups of twenty each, with a man and wife to look after such groups, and these boys could earn their living here and improve the farms at the rate of twenty-five per cent. per year for five years, thus more than doubling the value of the farms while they have been earning their living on them. With the present high price of meats, butter, eggs, etc., these farm colonies could be used in the production of such farm commodities as the state is now buying for its various charitable institutions, and that, too, at a great saving to the state. These farms could be either rented or purchased outright as the state authorities might decide, and the inmates living on them would have an excess of labor above that required for working and developing them, and such excess labor could be made available for surrounding farmers, at a considerable income to the state. This would be a great help to the surrounding farmers, as they are unable to secure labor to

assist them in their farm work. Some of the boys from each farm colony could go by the day with an attendant to work on the surrounding farms, returning to the central colony at night, having their breakfast and supper at the colony and taking their dinner with them, so that they would be constantly in the custody of an employe of the state. As the result of our experience with farm colonies and boys working with attendants in this way, we are very sure that this scheme could be worked out in a practical way and at a considerable income to the state. In this way we would be providing cheap custodial care for from five hundred to one thousand of this class of inmates. Such inmates would be brought first to this institution, where they would be tested as regards their capacity for farm work and their trustworthiness at such work, and then from here assigned to the various colonies. We have at least two hundred boys at the present time here who might be cared for in such colonies, and who could be profitably and satisfactorily employed in that way.

The growing need for the proper care of the feeble-minded delinquent class continues to occupy the attention of all who have to do with the care of either the delinquent or the feeble-minded, as well as those dealing with normal children, and it continues to fall to our lot to care for many of these cases at the Rome State Custodial Asylum. I feel that an institution for the delinquent feeble-minded might well be operated under the same management as this institution, although on a separate site, for many of these delinquent feeble-minded are committed to us and could thus be transferred to such an institution, together with those delinquent feeble-minded which would naturally be committed directly to such an institution from reformatories, courts, etc. Five hundred of these cases, most of which had previously been inmates of juvenile reformatories, are passing through Elmira Reformatory every year and are turned out at the end of their reformatory term to again drift into crime. for they know no better, and later these self-same cases appear in State prisons or penitentiaries as the repeaters in crime. Having had occasion during the past summer to visit the formerly

proposed site for the Utica State Hospital Colony on Lake Delta, and thus knowing the natural advantages of the Delta site, chances for developing electric power from natural water storage at the Delta dam, and both the cheapness of the land in that region and the natural advantages in the line of rough land to be cleared up, and nearness of a good and ample water supply, and also railroad accommodations, state roads, etc., I feel confident that we could take such a site, build it up and maintain it with the work of inmates, providing the state would consent to their care in small colonies something after the nature of the colonies at Industry. I would like to have the opportunity to help develop such a colony as a branch of this institution, as I am very sure under these conditions we could produce at least half of the farm product maintenance of this institution from such colonies, after the colonies were completely built up and in running order. This would be in addition to maintaining the inmates on the colonies without expense to the State, that is, providing we have the material water resources for power, etc., from Lake Delta, and were given money enough to take sufficient land to raise beef, mutton, cattle for butter, etc.

DISCUSSION

Dr. A. C. Rogers, Faribault, Minnesota: I would like to ask what the proposed plan is for South Dakota, whether the attempt will be made to make a survey of the state, or a census of the state, or whether the ordinary method of application will be used, and then classify and place them under proper control.

Dr. Kutnewsky: The plan is this: A commission is to be appointed to examine every school child in the state. No child is to be sent to a penal or correctional institution before it has been examined. If a child is found to be defective he is to be sent to an institution. At present parents send children voluntarily. They are not committed, and parents take them away when they want to. We want them committed. At present only children without guardians can be committed. The child

found defective should be sent to the institution, the superintendent should be appointed guardian and the child not taken out of the institution without the superintendent's consent.

Dr. E. J. Emerick, Columbus, Ohio: I am very much interested in the movement. In regard to the compulsory education and care of the feeble-minded, I will say: It is a good thing when practicable, but in Ohio it would be utterly impossible for us to take all who should be here. Our capacity is taxed to the utmost now, and it would be impossible for us, with our present equipment, to give them proper care. I do not believe in accepting cases unless they can be properly handled and cared for. Besides there are many on our waiting list that have been committed. There are hundreds that should be in our institution; but the judges will not commit them, as they know we are full, and they would only be rejected. New Jersey and some of the other states may be more fortunate.

Dr. G. Mogridge, Glenwood, Iowa: In regard to compulsory education of the feeble-minded, I am not in favor of special legislation for this purpose, although I recognize that local conditions in other states differ from those in Iowa, which is almost entirely an agricultural community. Under the organic law governing the institution for feeble-minded children at Glenwood, which was enacted in 1876, and with minor changes is still in operation, the contemplation was that the institution should be an extension of the common school privileges to a class of children who, owing to mental infirmity, were not susceptible to training in the common schools. The provisions for the admission of such children were very simple, and there was no thought at that time, nor has there been subsequently, of making the admission by judicial procedure. Applications for children coming under the purview of the act were to be made by the parents or guardian, or in the absence of such, by certain county officials. Applications were passed upon by the authorities of the institution, and if it seemed that the child was a proper subject for the care and training of the institution, an admission was made. It should be noted that parents or guardians lose none of their rights in sending a child to the institu-

tion. Under this voluntary commitment, if I may use this term, we have succeeded in attracting to the institution, and retaining in it, many of the higher grade mentally feeble that I feel sure, under a court proceeding, we should never have reached. Under recent legislation, notably the juvenile court law (1905), we have received some children. These, however, do not constitute more than five per cent. of our population, and as they can only be held during their minority, we invariably lose them at a dangerous age. From experience under this form of judicial commitment, and I am led to infer that an enforced commitment will be stubbornly contested by the friends, I am at present not in favor of such legislation being extended to cover all the inmates of our institution. My aspirations are not for more laws, but for more knowledge on the part of the public in regard to feeble-mindedness and its dangers, a knowledge which will emphasize the safety and wisdom of segregating the feeble-minded, this segregation, however, being at the instance of their natural guardians, or at least with their consent. I am inclined to think that we are apt to look upon the problems of degeneracy in the large, whereas it occurs to me that they are primarily of a local nature. If each community could take a survey of its own conditions, then acquire some actual knowledge of facts in regard to causes and use common sense in treatment, we should not have to deal with the subject in a wholesale manner, but unfortunately we are apt to overlook our own locality and are naturally appalled when we consider the magnitude of the degenerate condition as a whole.

Dr. A. W. Wilmarth, Chippewa Falls, Wisconsin: In the matter of methods of receiving and discharging inmates, a brief report from a state where the entrance by commitment is the only method, may have some interest. For seventeen years, during its whole existence, in fact, inmates have been received in the Wisconsin institution, by commitment by a court of record, or by transfer by the State Board of Control, sitting as a commission in lunacy, and by that method only. This does not imply that a case must be presented in court, but that a medical report be made to the judge, as evidence, and he, in turn,

must issue a legal order of commitment. The law permits no other method of procedure for any age, or class. We have received from all classes; rich and poor, educated and ignorant. I have sometimes heard a doubt expressed as to whether parents would send their children under such conditions. This question is adequately answered by the fact that we have always had a waiting list. We have never been able to receive all who made application. We have received over 2,100 inmates. The legal method of discharge is by the superintendent with the consent of the State Board of Control, which means that the Board decides on the fitness of the inmate to return to his former surroundings. They are liberal in the use of this power, retaining no one who can be wisely discharged, but firmly refusing such discharge when wrong would be done to the subject, or the community, by such action. More than this, an inmate may be discharged by court on a technical error in the method of commitment. He may have a re-examination to determine if he has "recovered." Following this, either party may ask for a jury trial, and any six men who are qualified for ordinary jury services, sit as experts and give the final decision as to the mental condition of the subject. Some doubt was felt as to whether a person with mental defect was subject to the laws applying to the insane, as long as the legislature had prescribed a specific method of discharge, but the circuit court decided that such procedure was proper. It has been asserted that the courts, interpreting public opinion, would not sustain such commitment. For many years this matter was seldom tested in the court. Recently a local attorney began proceedings in a number of cases of adult girls, with morally degenerate tendencies, for their discharge. A few cases were discharged, either by physicians, or by juries. The physicians justly holding, that with the brief examination held in court, they were unable to find evidence of feeble-mindedness. I further found that stories had been industriously circulated that we had many perfectly normal people confined, simply because their services were so valuable to the state. Copies of "Psycho-Asthenics," with Dr. Fernald's article on the "Imbecile with Criminal Tendencies," were sent to the physicians of the city.

Our Dr. Frost read a paper on the same subject before the woman's clubs, which invited in many guests, and public opinion changed. In several cases tried later, only one was discharged and that on our recommendation. The board permits parole and discharge in every suitable case. From thirty to fifty go out each summer vacation, and their permanent retention in their homes is not opposed unless there is some very evident reason for such opposition. These are the results of an exclusive system of court commitment, which I submit without specific comment on its relative advantages or disadvantages.

UNGRADED CLASS WORK IN NEW YORK CITY— METHODS AND RESULTS¹

BY ELIZABETH A. WALSH, *New York City.*

The ungraded class work done in New York City will be discussed, first, as to the method of selection and examination of children and, second, as to the general method of teaching those who are placed in the ungraded classes.

Every child who is to receive this special training must first be examined. According to the by-laws of the Board of Education, the school principal is not allowed to place a child in an ungraded class until this requirement is fulfilled and the child approved for such work. The children proposed for examination are those who are markedly backward; those who cannot adapt themselves to the school discipline; those who are unduly nervous and irritable; the psychopathic child and, of course, the obviously mentally defective types. Many cases falling into one or more of the above groups are reported for examination each term to the Department of Ungraded Classes. Children of these various types are brought to the attention of the examining officials in several ways. Some are reported by the Permanent School Census Board, whose agent has found them while looking for children illegally detained from school. Some are brought by parents either on their own volition or acting on the advice of the family physician. Many are brought by social and philanthropic workers. A constantly increasing number are referred by the judges of the juvenile courts. Private and parochial schools send a few, but, as one would expect, by far the greater number are reported by principals of the public schools. The final selection of the children to be placed in ungraded classes is made after a consideration of the following data:

- I. The report of the school principal or other person proposing the child for examination.

¹ Read at the meeting of the American Association for the Study of the Feeble-Minded, Columbus, Ohio, June, 1914.

2. The social service report made by a social worker, who visits the home to get the various phases of the environmental setting of the child's life.

3. The clinical study of the child which includes a physical, psychological and pedagogical examination.

The clinics at which the children are examined are of two kinds, the stationary clinics, one in the New York office of the Board of Education, and one in the Brooklyn office, and the traveling clinics which are held for several days at a time in different centers throughout the city. To these centers are sent children proposed for examination from the several schools in the neighborhood of the centers. The object of these traveling clinics is to give these schools, which are at a great distance from the stationary clinics, an opportunity to have their children examined without great hardship. During the present school term, February to June 1st, forty such clinics, as those mentioned above, were held in the five boroughs of Greater New York. In the examination, the obvious cases are given relatively little time. The emphasis is placed on the examination of those border-line cases which are being reported more and more by the schools; of those children who deviate only slightly from the normal, the child who can grasp arithmetic but who cannot learn to read, and vice versa, the child who is strongly ear-minded or motor-minded and who has fallen behind because the instruction given in most schools is based on the fact that the majority of children are eye-minded.

A boy recently examined is an interesting example of retardation probably due to an auditory type of mind combined with partial deafness. The boy was thirteen years old and in the 4-A grade, a school retardation of from three to four years. According to the Binet scale he was ten years old mentally, but in this test he failed on the things which depend on training, such as the names of the months and the dissected sentences. He had an auditory memory span of seven numbers but failed on the visual memory test. Further tests were given to determine if his memory was strongly auditory. Those which appealed to the ear were in every case the ones in which he was proficient, while

he failed signally on all tests requiring visualization. This boy was troublesome when in school. He was a truant. Because he was troublesome he was placed in a back seat. The clinical picture is a boy, the best avenue of approach to whose mind was so badly impaired, that he heard very little of the instruction given by the teacher or the recitations of his fellow pupils. Because he could get so little out of his school life, he naturally became troublesome and was placed in a back seat, which made it still more impossible for him to hear. Is it any wonder that, with his particular type of mind combined with his disability, school was intolerable, he became a truant, and found himself falling farther and farther behind as the years went by? He was placed in an ungraded class with older boys. Here he has a teacher who understands him and who is developing him in the only way it seems possible to do this, namely, through individual instruction which is modified to suit his type of mind. He is making very satisfactory progress and his truancy has now entirely stopped.

The recital of this case indicates to you that the aim in the psychological tests is to ascertain the strength as well as the weakness of the individual; in other words, an attempt is made to do constructive work. The school must not only classify, it must train the child. The teacher wants to know along what lines this training will be most successful. The child should be helped to have the aim of his life defined in terms of his own natural endowment and possible attainment. He has a right to this kind of guidance and the school should give it. The high water mark of training is reached only when the best avenue of approach to the mind is known. It is desirable for the teacher to know whether a child remembers best what he sees, what he hears, or what he does, and to use this knowledge in planning his work.

The tests used in any given case depend entirely on the type of child under consideration. Some of the facts which the testing brings out are kind of attention, perception, type of memory, power of association, intelligence, judgment, suggestibility, motor control and co-ordination both for speed and accuracy, gen-

eral information, and constructive ability. A school test to determine to what extent the child has profited by his school experience is considered important. This test often discloses the fact that a child is quite able to do work in arithmetic which children of his age ordinarily do, but that he fails in reading. He can often do fifth grade arithmetic, but only second grade reading. The reverse of this is true of other children.

The examinations so far alluded to have been for the purpose of determining in the individual those traits relating essentially to the intelligence, the capacity for acquiring knowledge, and the power of judgment. For an increasing number of children another step must be taken. Traits in the personality other than those relating to the intelligence need to be understood. The emotional life, the play reactions, the natural affections and similar trends must be analyzed and laid bare. The matter of examining children in the way indicated here takes time. It means prolonged observation and frequently many examinations before it is possible to make a diagnosis. The results of the tests are most interesting. Many boys who fail miserably on any of the association tests, solve successfully the Healy construction puzzle and the puzzle box. They seem unable to manipulate ideas, but they can manipulate concrete things. Moreover, they show that they have the power to plan, and to analyze relatively complex situations when they are presented concretely.

The children examined in the stationary and traveling clinics naturally divide themselves into two classes; those needing only physical care and those needing special educational treatment. These groups are not mutually exclusive. A child found to be normal mentally but suffering from physical defects, which are a handicap, is returned to the regular grade. The person who proposed him for examination is advised of his condition and suitable treatment is recommended. If on the other hand the examination proves him to be mentally defective, his future school work is prescribed. It has been possible in many cases to classify or grade the children in ungraded classes. There are classes for high grade older boys, for high grade older girls and classes for

low grade children. To one of the above types of classes a child approved for ungraded class work is assigned. Many of the cases examined are too low to receive any benefit by attendance at a public school. For such, institutional care is recommended.

What, now, is done for these children who are placed in special classes? We proceed on the theory that they do not need more of the kind of training they have failed to acquire, but that they need training of a different type. Flexibility in grading, in the subject matter and in the course of study gives the teacher of an ungraded class an opportunity to adapt a child's school activity to his needs. Up to the time he enters the ungraded class, the pupil has been trained largely in discrimination between the shades of meaning of different words and phrases; he has been given much memory training. For unfortunately in our public schools memory training predominates over training in observation and work with concrete things. In the ungraded class the child is brought into contact with real objects on every occasion and not with pictures or drawings of objects. The children work on concrete things and not alone on verbal descriptions of things. We believe that the child is helped by having different studies associated around a common center, and so we correlate around some social activity in which he is interested, such as Indians, the home, Christmas, etc. We begin where the child is, not where he ought to be. Instead of the ordinary class room of seats and desks, we have tables and chairs. The room is made to look as different as possible from the regular class room. Each room has three work benches and the classes for older girls have, in addition, a sewing machine.

The method employed is the one expounded by that wonderful man, Dr. Seguin, which he called the physiological method of education. This method is largely motor. It includes all forms of motor expression employed in teaching reading, writing, drawing and physical training, as well as the manual exercise used in gardening, weaving, pattern making or carpentry. Seguin said, "Our instruments of teaching must be those that go directly to the point. We must use objects, pictures, photographs, cards, patterns, clay, wax figures, scissors, compasses, pencils,

colors, even books." It is Dr. Eliot who says that it is through practice with eye, ear, nose and touch, that the same nerves and ganglia that transmit and record our sensations and set going our movements that we all get our minds to work in childhood and acquire not only skill with eye and hand but also skill in thinking. The normal child gets this practice through his own activity and curiosity. For the defective child, especially if he is of low mentality, provision must be made in order that he shall get it. To this end the low grade children are given work in sense training. The purpose of this is not to make the senses sharper, but to get the children to attend to impressions received through their senses. Through careful training of the senses, and through reasoning on the testimony of the senses, the processes of reasoning are brought as near perfection as may be. Exercises for the training of the senses of touch, hearing and vision have been carefully worked out. They include many devised by Seguin. To avoid formalism in this work, we give the child a motive for what he does. Instead of buttoning and unbuttoning strips of cloth, he buttons and unbuttons his companion's coat, or if a little girl, she buttons and unbuttons her doll's clothes. If the sense training is separated from real needs and accepted motives, it degenerates into mere mental gymnastics and the children get little real training from it.

The older high grade boys devote a part of the time to manual training. They cane the chairs, make the window boxes, and do the simple repairing for the school and sometimes for the whole school district. Brush-making is one of the newer activities. One ungraded class last term made sixty floor brushes. They were bought by the Board of Education, because they were cheaper and better than those purchased in the markets. The money thus earned was used to buy material for more brushes. The work in manual training means observation of material and much planning in order that any given project may be successfully carried out. It is quite distinct from work that trains for a trade primarily. The great difference is that it has for its object the training of the child. The emphasis is put on the growth that comes to the child through carrying his plans

over into action, and not on the object that is to be produced, except as the object furnishes a motive for him. Not the least important part of the training which the child gets in manual work is that which comes through setting his own problem, selecting suitable materials and choosing the tools best adapted to his purpose. He is led to see his own errors and to devise ways to correct them. He must do his own measuring and marking within the range of his capacities. The ideal is to have him put the maximum of consciousness into whatever he does.

Manual training carried out in this way furnishes the very best means of sense training and discipline in thought. The weakness of formal sense training, as indeed of all formal training, is that it has no outlet beyond itself and so no motive. This is unnatural. In the life of any individual it is always a need that makes one look about, observe, discriminate; makes him keep that which is of value and reject that which is not.

The older girls learn to do simple sewing; they are trained in elementary domestic science either in the school kitchen or in model flats. They put into practice what they learn in this way in caring for their school room.

Physical training is not neglected. In every class corrective educational, hygienic and recreational gymnastics are given. The emphasis, however, is put on the games. If a corrective exercise can be given as well through a game as by means of formal drill, the game is always given the preference. When the teacher wishes to give "Arms upward stretch" for posture, one way in which she does it is to give the child a basket-ball and let him throw it into the basket reaching high over his head as he throws. Someone has said that man is man only as he plays.

Along with the different forms of motor and sense work described, the ungraded class child has reading, arithmetic, English and civics. In fact he is offered everything that his normal brothers and sisters have, but in doses suited to his particular needs and in ways that are attractive.

The results of ungraded class work in a school system are manifold. First, there is the effect on the mentally defective child himself. He is given a kind of training that is suited to his

variant mental equipment and he is spared the ignominy of constant failure in a regular grade. The children now in ungraded classes would be in the regular grades if they were not in such classes, and that brings me to the second point, namely, the relief which is afforded to the regular grade by making a place for those who only act as a drag in it, and third, the possible effect the methods of teaching in ungraded classes may have on the teaching of the normal child. A visitor to an ungraded class said recently that he could see many things done there which would be just as good for normal children. A supervisor of normal children in one of the New York Training Schools remarked, "We who teach normal children should learn a lesson from those who are teaching the mentally defective. When we take as much pains to teach them as you do to teach the defectives we will have taken a long step in education." The fourth effect is that of helping to arouse public interest in the mentally deficient. There has never been such enthusiasm for these unfortunates as is now manifested in New York. Many organizations are seeking to control the situation by every means in their power. The schools, at present, hold the fort. It is through the schools that the great mass of children can be reached, and it is the only place to which many parents will voluntarily bring their children. The school has the means of collecting and grouping children. It observes through a period of years the children of the community. It can train for institutional life most of those who need it. The institution should become the "high school" for ungraded class children. It is entirely possible for mentally defective children and their parents to look forward to a child's promotion to an institution as normal children look forward to promotion to the classical high school. Those who are interested in the school problem look forward to the day when children needing institutional care will be adequately provided for and their places in ungraded classes left for the higher types; those about whose mentality there is doubt, the nervous, irritable types, in a word, those backward but potentially normal children for whom at present no adequate provision is made in the public schools.

SPECIAL SCHOOLS VERSUS SPECIAL CLASSES¹

BY MRS. CORDELIA CRESWELL, *Grand Rapids, Mich.*

What are the values of special schools as compared with special classes in the training of sub-normal children in our public schools? The two systems of training are not entirely adverse, indeed, they may be combined to advantage and have been so combined in our city of Grand Rapids, Michigan. The system as we have it gives a chance for promotion, for better grading of the pupils and the stigma which attaches to separate schools has to a large extent, at least, been avoided. A brief review of the methods employed will be in order before discussing the merits of the two methods.

From the beginning the feelings of the parents in this matter have been appreciated and considered and all mention of the feeble-minded is officially tabooed. Our special school is known as the Auxiliary School for Exceptional Children, the school being auxiliary to the classes for exceptional or "ungraded" children in the grade schools. As there have always been "ungraded" classes the transition from one to the other was easy and offended no one. The Supervisor is called "Supervisor of Special Classes" and her jurisdiction covers not only the exceptional child who is mentally deficient, but the blind, cripples and stammering or otherwise deficient child, so that the most fastidious could take no offense at this classification of their children.

At the Special or Auxiliary School for Exceptional Children there are four departments, kindergarten, English, domestic art, and manual training, and domestic science, including school gardening, with a specially trained teacher to each department. There is a special class in each of three grade buildings, and a special class of high grade morons in the Junior High School. When a pupil develops sufficiently in the special class he may be transferred or promoted to the Auxiliary School, and from there he may be promoted to the Junior High School class, which is in-

¹ Read at the meeting of the American Association for the Study of the Feeble-Minded, Columbus, Ohio, June, 1914.

deed a very high honor. It is not an empty honor, either, for this building is equipped with shops and other departmental facilities and the special class is under a skilled instructor, who is especially proficient in basketry and other industrial art. In this way we keep the child where he is able to do his level best which always makes promotion and satisfies the desire for change in both parent and pupil. In the Hall School special ungraded manual training classes have been organized for backward and mentally retarded children. These classes are taught by the regular manual training teachers. However, they are much smaller and more time is given to them than to the regular graded pupils. This seems to be a fairly good method of bringing help to the large number of backward children found in certain schools, and this work is in a fair way of being extended to other schools. This, in brief, is a system of special schools versus special classes as exists in our city.

The main objection to the special school is the stigma which attaches to it in the minds of parents. This feeling, as has been shown, can be largely avoided by tact and care, and this stigma is a feeling which comes from the adults or parents and not from the child himself. The child is happier in a special school than he is in the ordinary special class because he is associated in the departmental or special school only with his own kind, he is free from the contact, teasing and other annoyances which he receives from normal children whom he must meet more or less on the school grounds while in the special classes. It should be remembered, also, that his absence is much more beneficial than his presence to the normal child. It should also not be forgotten that there is a wide difference between the lowest grade only able to take kindergarten work and the high-grade morons. Now, the departmental school permits better grading and separation of these various classes of subnormal children which administers greatly to their own comfort and makes instruction less complex for the teacher to handle. Of course, this same grading may be accomplished to a certain extent in the special classes as it has been in the Junior High School, but classes such as this composed of high-grade morons must

necessarily be limited in number. The vital question to be answered after all is not the opinion of the parent or the public but what the effect is on the child. The child is most influenced by those not of his own age. It is this that makes him unhappy, when he is continually forced to bear the slights of the normal child. There is no question but that the subnormal child is happier in the special school. There among his mental equals he also builds for himself a good degree of self-respect and self-confidence, besides his school time happiness.

Special grading might be accomplished in special classes by having more than one class in a building, but there are other advantages of the special school not to be so gained. The teacher of the special class is rarely an expert along all lines, but the child in the special school has the advantage of specially trained teachers along all the departmental lines. Moreover, the training in the departmental school is more practical and less didactic. When the manual training is given by the regular teacher it is not given daily, but in the exceptional school everything is made to count for the future life of the pupil. Every school day the boys and girls have manual and industrial work; they cook their own food, wash dishes, set table, wash and iron weekly, etc. It is not the theory taught but the actual housekeeping they do. All manual and industrial work is kept practical so that it may specifically meet the needs of their future life. The departmental school is also of educative value to the public. Scattered through the schools these feeble-minded children attract little attention but en masse in one building they produce a wholesome shock to the public mind. The Auxiliary School for exceptional children is visited weekly by people from the various parts of the state and nation, and the effect of these visits may later be seen by better care of thousands of these unfortunates who are now uncared for, a living death to themselves, a menace to society.

Finally as to the educational point of view, the danger in the departmental school lies in the lack of correlation between the departments, which may be offset in a measure by wise planning on the part of the principal. On the other hand the

special class is frequently taught more from the ordinary school teacher's point of view. The academic work of the building effects the special teacher and the class. A tendency to keep the class close to the grade work is the result. There is also unrest at promotion time which oftener results in the return of the pupil to the grades when he is unfit and injured thereby. The concensus of opinion as to the proper distribution of individual cases based on the point of observation of the four teachers is of great value to the supervisor and the public. The Probate Judge of Kent County depends more upon this concensus of opinion for the commitment of cases to the State Institutions than upon the opinion of physicians, hence the special school becomes of value as a clearing house for institutional cases.

From the foregoing it will be seen that the special school has great advantages and the special classes are also of great value in the training of the subnormal children. Perhaps an ideal solution of the problem will be found in a carefully worked out combination of the two systems. We do not claim to have achieved this idea in Grand Rapids, but we are working along these lines and are hopeful for the future.

DISCUSSION

Dr. A. C. Rogers, Faribault, Minnesota: We have special representatives here from other cities, from Buffalo, Rochester, and possibly from other places. We would like to hear from them. Miss Metzner, have you anything to tell us?

Miss Alice B. Metzner, Detroit, Michigan: I am a better listener than talker. I do only Binet testing. In our city there are special classes and two classes for subnormal children, older boys and girls. There has been difficulty in getting parents interested in auxiliary classes.

Dr. Button, Rochester, New York: I know nothing in particular about pedagogical matters, my work being the medical examination of the children in the special classes in our public schools of Rochester, New York. We have in Rochester thirty special classes for children of the subnormal type. We

have a few for the simply backward group, we have two classes for incorrigible children (all of whom appear to be boys), and we have already two classes established for the training of children with speech defect, and are to have at least five such classes for this work during the coming year. Much is being done, but we should be doing even more.

There is no doubt that physical handicaps affect those of us who are normal, and I believe it is a much greater handicap in those who are subnormal. In children it is particularly important that they should have good teeth. Dr. Leonard P. Ayres, in his investigations on laggards in the public schools, has demonstrated that bad conditions of the teeth have a marked retarding effect on the child's advancement in school, and large tonsils and adenoids are a handicap to a child's mental growth. In speaking of tonsils I do want to protest against the old form of tonsil operation, the slicing operation. Very often the results following this operation has not been satisfactory, and because of that the operation has fallen somewhat into disrepute with many good people. The failures to produce good results have been because of the type of operation that was performed. There has been gradually a recognition of the fact that the snaring operation is much better than the slicing operation. The great trouble with the slicing operation is that generally it only cuts off the protruding tissue, and oftentimes, particularly in cases of submerged tonsils, there is much hypertrophied tonsillar tissue remaining buried between the anterior and posterior pillars of the throat. Across the surface, where the cut has been made, of course scar tissue forms, and scar tissue, as is commonly known, is dense and tough, and as a consequence does not act as a good draining surface. The result is that what is left unremoved of the tonsils must find a drainage escape through other than surface directions, that is, through the glandular system, and we get as a result the marked enlargement of the glands in the neck. It has been my observation that where the tonsils are enucleated by the snaring method of operation, the after results are much more satisfactory, and this disturbing and overloading the glandular system of the neck

is avoided, and the greatest benefit to the child is gained. If done well, you get relief; if done poorly, disappointment. I have been interested in my work in observing the large number of cases of thyroid gland enlargement. I believe that I have found this condition in practically twenty-five per cent. of the children in our special classes. Of course most enlargements are of the innocent type, the so-called puberty goitres, but on the other hand, we occasionally find children with these enlarged thyroids who show a marked increase of pulse rate, considerable fine tremor, poor nutrition even though eating a good amount of food, and occasionally some protrusion of eye-balls. In public school work in our city, the school physicians are not allowed to do anything in the way of treatment. They are limited entirely to recommending. This of course leaves great uncertainty as to whether or not the children afflicted are to get the proper treatment. A good many parents appreciate the situation and help. Unfortunately too many others are, like their children, of such a mental type that they do not understand what should be done, nor do they know of the methods to pursue in order to obtain relief. It is along this line of work that our teachers are able to do a great deal. Practically every one of our teachers has to be a good social worker, who goes into the homes and tries to explain and instruct the family in the proper method of relief. Fortunately some direct relief can be done in the school buildings themselves, for we have established in some of our schools dental clinics, and we have special classes organized for the training of children with speech defect. The rest of this corrective work must be given outside of the school. That is where you men and women who are in charge of institutions have an advantage and can do things more as you wish in these corrective measures to bring your children up more nearly to the highest standard possible for them.

Dr. F. W. Barrows, Buffalo, New York: In Buffalo the mental and physical examination of backward and feeble-minded children is in charge of the Health Department as a part of the medical inspection of schools. We have the hearty co-operation of the Educational Department which accepts our mental diag-

nosis and endorses it by placing the children in special classes so far as they are able to organize them. We use the Binet test as our principal reliance in grading the feeble-minded, but are introducing other psychological tests from time to time. We have been doing this work only two years, and feel that we are just making a beginning. Out of twenty-five medical inspectors of schools, only one devotes most of his time to this work. One other inspector makes psychological examinations in the Juvenile Detention Home. The Educational Department now maintains seven special classes for the mentally defective. We need four or five times as many. These classes contain nearly one hundred pupils. The work of these classes is about the same as in similar classes in other cities. The teachers have not all had training enough to make them experts, but they are all interested and steadily improving. The people of the city are taking more interest in the care of the feeble-minded. We are trying to make a judicious use of our opportunities to inform the public on this problem. We are careful not to antagonize parents by emphasizing the term feeble-minded. We call the classes "ungraded" or "special" classes. But we do not hesitate to tell the friends that many of these pupils are mentally defective and that their defects are incurable. We caution them not to expect that their children will become brilliant pupils. In the Monthly Bulletin issued by the Health Department we are trying to present facts and arguments of educational value respecting mental hygiene and our duties to defective children. We have gained the confidence of the Juvenile Court, and our reports often are the means of placing juvenile delinquents in proper institutions or homes instead of places of punishment. At present we give the Binet test to all the children referred to us by the Court. We hope very soon, with the help of a special Binet examiner, to give a mental examination to every inmate of the Juvenile Detention Home, just as now we give all of them a physical examination. In this respect we have not progressed quite as far as some of our sister cities, upon whom we look with envy. But we have made an auspicious beginning. We regard the special classes a clearing house from which many of the pupils ought to go to cus-

todial institutions. But all of our State institutions are so crowded that we are forced to keep most of our feeble-minded children in Buffalo. What we need more than anything else is another custodial institution in Western New York, and we are bending our energies to interest the people in founding such an institution. We need it, not only for the care of our many feeble-minded children, but also for its educational effect on the community. A fine institution, like this in Columbus, to whose hospitality we are indebted this week, serves as a great object lesson to the public. It does more than all other agencies to remove from the public mind the disgust and prejudice which the people are apt to cherish against asylums and all other state institutions.

REVIEW OF MEUMANN ON TESTS OF ENDOWMENT

BY LEWIS M. TERMAN, *Stanford University, California.*

What will doubtless take rank as one of the most important events in the history of applied psychology is the publication, in the latter part of 1913, of the second volume of the revised and enlarged edition of Meumann's *Experimentelle Padagogik*. The subject matter which was treated in three chapters of some two hundred pages in the first edition (1907), occupies the entire second volume of the new edition and fills eight hundred pages. This space is apportioned as follows:

(1) Investigation of the individual differences among children, ninety-three pages.

(2) Scientific basis for the investigation of endowment, three hundred and ninety pages (one hundred and seventy of which are devoted to the Binet-Simon tests).

(3) The main results of the investigation of endowment, two hundred and five pages.

(4) Intelligence, or the higher type of endowment, two hundred and five pages. (This is a qualitative analysis of the intellectual processes).

(5) The practical problems of endowment, forty-five pages.

In his citations of the results of other workers Meumann is the most catholic of German psychologists. Practically the entire literature of the subject, German, English, French and Italian, is passed in review and subjected to critical interpretation. The volume is therefore practically a source book on the psychology of endowment.

The writer has reviewed elsewhere those divisions of Meumann's treatment which are concerned with the Binet-Simon tests and the analysis of intelligence. It is the purpose of the present article to give to the student who is unable to read the original text a general idea of the ground which Meumann covers with reference to the methods, results and practical prob-

lems of endowment investigations. Although the parts dealt with in this review do not constitute a continuous body of the text, the coherence of the subject matter justifies a unitary treatment. "Methods" occupies most of the space, Pp. 300-481; "results," Pp. 481-686; and "practical problems" Pp. 725-771. These three divisions will be reviewed in the order named.

A. Methods.

According to Meumann, tests of endowment fall naturally into two classes: the direct, or psychological; and the indirect, or physical.

1. The Indirect Method. Bayerthal's measurements indicate (a) that a circumference of the head considerably below normal is nearly always accompanied by low intelligence; (b) that an exceptionally large head is not a correspondingly reliable symptom of high intelligence; and (c) that at school entrance children with heads below a certain circumference may be quite safely transferred to schools for the mentally defective. Bayerthal claims that good intellectual ability is not found in children with a head circumference below the following:

Age	Boys	Girls
7 years	48 cm.	47 cm.
10 years	49½ cm.	48½ cm.
12-14 years	50½ cm.	49½ cm.

Meumann states that, in general, good mental endowment accompanies good physical endowment, but that beyond this the value of the indirect approach to the study of endowment is very limited.

2. The Direct, or Psychological Method. The psychological methods again fall into two classes, (a) isolated tests and (b) serial and many sided tests.

a. Isolated tests have long been in disfavor. Their faults are chiefly three: (1) We do not ordinarily know what part the function tested plays in endowment. The tests of rapidity of mental processes, for example, are complicated by the factor of accuracy, and are also dependent on physical disposition, will, liability of feelings, etc. (2) They do not give us a total picture of endowment even when used in large numbers. There is no

way to summate their value, so to speak. To take merely the average of several tests does not tell us how the functions tested work together in the production of total ability. They give us little knowledge of the qualities of mental activity. (3) The method of isolated tests involves certain psychological presuppositions which have not themselves been subjected to sufficient scrutiny.

Yet the isolated tests have a certain value. They can be used, for example, to pick out subjects for more intensive study; and some of the tests of this class have given valuable information regarding individual mental process. They are unreliable, however, when used to measure comprehensively the grade of general ability.

b. The graded, connected, or serial tests are of far greater value. The most important system of graded tests, that of Binet and Simon, is discussed elsewhere in the volume.¹ Other systems of graded tests here set forth and discussed by the author are those of Sante de Sanctis, Anton, Sommer, and Rossolimo. Other less systematic sets of tests are those of Sharp, Wissler, Cohn and Dieffenbacher, Kelly, Petersen, Bechterew, Squire, Norsworthy, Burt, Abelson, and Woodworth and Wells.

The most promising of these systems, apart from that of Binet-Simon, is Rossolimo's, especially because of its inclusive scope and because of the graphic or "profile" method which Rossolimo adopts in evaluating his results. Rossolimo's tests fall into three main groups: (1) tests of attention and will, (2) tests of observation and memory, and (3) tests of the associative processes. For each of these there are several subdivisions, each testing a sub-function, and of each sub-function there are ten tests.²

Meumann notes that at one time or another nearly all of the usual experiments made in psychological laboratories have been employed as mental tests, but he regards these, either singly or

¹ Pp. 133-300. For review and criticism of this part of Meumann's volume see *J. Ed. Psych.*, March, 1915.

² For a brief account in English of Rossolimo's "profile method" see *J. Exp. Ped.*, 1911, pp. 211-214.

in combination, as inadequate to an all-around analysis of endowment. We can never tell, *apriori*, what a test will signify for endowment, because we do not know how the various mental elements contribute to general intelligence. Nevertheless, many of the tests of this kind can give valuable data if norms have been secured. It is by securing norms of performance for many tests from both sexes and from all ages and grades of ability that we shall learn the significance of each function for general ability.

To accomplish this result, the author regards five groups of tests as necessary:

(1) Tests of the motor and sensori-motor basis of intelligence.

(2) Tests of sense perception.

(3) Tests of individual qualities of attention.

(4) Tests of association and reproduction.

(5) Tests of the synthesizing mental powers by means of various forms of the "combination method."

c. Tests of motor and sensori-motor functions. Tests of this group as a rule show a much lower correlation with endowment than do tests of the higher mental processes. They are of little value in differentiating among higher grades of intelligence, but can aid us in the diagnosis of feeble-mindedness. Attention and will of course play a part in the co-ordination and control of voluntary movements. The group includes tests of strength, of rapidity, and of delicacy of control.

Strength has been tested chiefly by means of the dynamometer and the ergograph. The author presents sample results obtained by the use of both of these instruments and describes various "types" of performance, but except for rather low grade cases of feeble-mindedness he does not consider the strength tests of much value in the psychological study of endowment. In strength tests, as in all others which make any demands upon voluntary effort and attention, low grade defectives show a characteristic unevenness of performance.

Rapidity of movement has been measured chiefly by the

tapping test. The results obtained by this much used experiment are as follows:

- (a) The individual differences are very large.
- (b) Children are slower than adults.
- (c) Adults display larger individual differences than do younger subjects.
- (d) Girls have a slower tempo than boys.
- (e) "Handedness" in rapidity is less marked with adults than with children.

(f) As regards relation to intelligence, the results of the different investigators are not in complete agreement. The data of Smedley, Gilbert, T. L. Bolton, Kirkpatrick, Binet, and Meumann himself indicates that with children up to about twelve years of age there is a positive correlation with intelligence, but this later disappears or is even superceded by a negative correlation.

Meumann does not estimate the tapping test very highly. As an isolated test it has little worth, but its use is justified if we desire to obtain a complete picture of endowment. It is significant mainly in the case of extreme abnormality. Its meaning will continue to be vague until we have learned more about the physiological and psychological factors which determine rapidity, such as will, attention, irritability of the nervous system, etc.

Skill in the co-ordination of voluntary movements (accuracy) is of more significance for intelligence than is strength or rapidity. It has its physiological and psychological basis in the acuity of kinaesthetic, tactual and visual discrimination, and in the delicacy, uniformity and strength of motor innervations. Results of co-ordination tests demonstrate, (1) that individual differences are not especially large; (2) that there is a positive correlation with intelligence, especially for large numbers of individuals taken together; and (3) that defectives show their inferiority in an abnormally high average variation for successive efforts.

Accuracy must be tested separately for a number of activ-

ities, such as drawing straight lines, drawing curved lines and figures, aiming, writing, modelling, etc.

d. Tests of sense perception. The purpose of tests of sense perception in the investigation of endowment differs fundamentally from their purposes in general psychology. General psychology seeks to analyze perception into its component sensory elements, while the psychology of endowment is interested in its total aspect, and especially in its relation to the use of apperceptive material (memory, imagination, concepts, etc.). In these relations of sense perception to the higher thought processes almost the entire mental life is open to investigation.

Mere sensory discrimination, however, is of little significance for intelligence, for it matures so early that there is little improvement during school life. Except with the feeble-minded, the individual differences are small and little influenced by training.

Visual acuity has a certain importance for mental development, and yet high intelligence is possible without it, as the case of Helen Keller abundantly proves. On the other hand, dull sense are disproportionately common with subnormal children, and even Helen Keller seems to have been greatly handicapped in the learning of geometry.

As for tactual acuity, Binet believed for some time that the aesthesiometer offered a satisfactory means of measuring intelligence. Later he found that it was only on the first trial that the bright and dull fell apart, and that on repetition of the test the results for bright and dull children closely approximated each other. Then he concluded that the difference between the two groups was not one of sensory discrimination, but a difference in the readiness with which attention adapted itself to the conditions of the experiment. Van Biervliet, who also used the aesthesiometer method with bright and dull children, found that the latter had an abnormally high average deviation in successive trials. He concludes, therefore, that uniformity of performance is a mark of intelligence.

In keenness of smell and taste, imbeciles and idiots fall far below normal children, but with normal or only slightly sub-

normal subjects these senses offer no evidence of being correlated with intelligence.

Such investigations, Meumann believes, teach us that tests of sensory discrimination with normal children are not tests of intelligence directly, but only indirectly, i. e., in so far as intelligence is involved in adapting to the conditions of the test. He thinks that Spearman's results to the contrary cannot, for two reasons, be accepted as valid. In the first place, his procedure in the tests was at fault. In the second place, the correlation of plus 1 which he found is regarded as absurd, since perfect correlation would be possible only if intelligence were the only factor determining the result. This we know is not the case. It is unreasonable to expect perfect correlation of intelligence with any one function, and the plus .23 correlation which Thorndike, Lay and Dean found between intelligence and sensory discrimination is much nearer what reason would lead us to expect. The latter study, indeed, showed that the correlation of the discrimination tests to **each other** amounted only to .50, and their correlation with intelligence would of course be much less than this.

e. Tests of attention. Everyone knows that attention is related to intelligence, but the exact nature and **amount of this** relation is hard to establish. The only way to accomplish this is to test all aspects of attention systematically with large numbers of subjects.

In considering attention it is necessary to distinguish (a) the qualities of the ideational or perceptual content of the attentive state (clearness, ability to direct association and reproduction, relative fixation, etc.); and (b) the formal qualities of the attentive state itself (span, intensity, uniformity, persistence, inhibition, adaptation, types, etc.).

Attention span is easy to ascertain for unrelated material, though it has less relation to intelligence than to maturity. Normal children show a narrow range of individual differences, but mentally defective children drop far below normal.³ The rela-

³ Here, as in many other places, Meumann speaks of the feeble-minded as constituting a type entirely distinct from normal individuals. The justification for this will be discussed later.

tion to intelligence is more marked the more complex the material used.

Attention span for related impressions correlates with intelligence more closely. The tachistoscopic experiments with groups of dots, lines, figures, etc., have been very fruitful because they draw on the apperception, abstraction, subjectivity and objectivity of observation, and on the basic qualities of attention. Attention span should be more studies with respect to motor and idio-motor activities of complex kinds, such as drawing, modelling, play, the execution of commissions, simultaneous activities with right and left hand, etc.

The intensity with which attention is concentrated would seem to be more significant for intelligence than attention span, for it may be regarded as a kind of measure of intellectual energy, an indicator of the force with which the intellectual processes focus upon the object of mental work. The greater this intensity, the more it absorbs the object of mental work. The greater this intensity, the more it absorbs the whole conscious state and inhibits other impressions and processes. This quality of attention is present only in a low degree with the feeble-minded, but is a characteristic trait of genius. Its importance for minor intellectual differences among normal children has not been so well made out. Tests of intensity of concentration include dot counting, crossing out or counting letters, proof-reading, adding two columns at once (Binet), reading and listening simultaneously (Sharp), punching marked holes from a group of holes in a card board (Rossolimo), etc.

Persistence and endurance of attention are best indicated by the curve of work established by Kraepelin and others. Attention is involved in all the factors which influence the work curve, that is, warming up, adaptation, fatigue, practice, and spurt. For measuring persistence and endurance of attention Kraepelin's addition method is faulty in two respects: (1) It leaves too much to the spontaneity of the child; and (2) it becomes mechanical with practice. Winteler's dot-counting test is preferable.

The fixating, however, of attention, i. e., the ability to fixate given elements in consciousness continuously for a period,

is tested by crossing out several letters at once. Meumann notes the difference of opinion as to what function or functions this test draws upon. Oehrn used it as a test of attention, Cattell as a test of perception, Sharp as a test of attention and distraction, and Judd as a test of discrimination-reaction. All of these, according to Meumann, are too indefinite. What the test really involves is, (a) ability to fixate by attention the letters to be crossed; and (b) the perceptual recognition of those letters which correspond to the ones fixated in consciousness.

For the author's purpose the leading results of the experiments in attention are as follows:

(1) Attention has less bearing on the **grade** of intelligence than on its **qualitative** character. In this respect the qualities of attention are like the elementary processes of sensation. They help to separate the normal from the subnormal, but they do not give fine shades of difference among normal individuals.

(2) The qualities of attention are greatly affected by practice. This is especially true of intensity, uniformity and persistence, but holds only slightly for span.

(3) The qualities of attention are related directly to the emotions and the will, to intelligence only indirectly.

(4) The rapidity with which attention adapts itself to a given test has a certain, but not yet fully determined, relation to intelligence. The attention of intelligent children adapts to a given test more readily than is the case with subnormals, but the rate differs with the nature of the material used.

(5) As regards intensity of concentration, Binet found that success in counting dots depends more upon the care with which the task is done than upon intelligence. Yet Binet and Winteler agree that dull children make more errors than normal children. Rate of reading also has been found to increase with age and intelligence, particularly when the material read is difficult. In simultaneous addition, subnormal children are usually, but not always, slower than normal children and they make more errors. But, on the whole, rapidity of work has little correlation with intelligence. Moderate intensity of concentration permits good

accomplishment in case the other qualities of attention are favorable.

f. Tests of apperception. It is seen that the above discussion leads the author over into the field of apperception, by which is meant the sum total of the intellectual processes involved in the assimilation (*Einverleibung*) of the new.

Apperception shows well defined stages according to maturity, and where it deals with complex material it has a high correlation with intelligence. It is important also for the reason that it aids us in the qualitative analysis of intelligence. The psychology of endowment can therefore not afford to neglect tests of apperception. Three sorts of apperception tests have been used.

(1) Description of an object. Interesting results have been secured by Binet, Le Clerc, Monroe and others by having children describe a cigarette, postage stamp or some other object placed before them. Various types of performances have been distinguished. But the test is little usable because of the difficulty in grading the performance. As an intelligence test it is also vitiated by the influence of emotional and volitional factors.

(2) The description or interpretation of pictures (together with other forms of the *Aussage* experiment) is of greater value. The three stages defined by Binet as the enumeration stage, the description stage and the interpretation stage, are known to all who are familiar with the Binet tests. As regards the report experiment, no sure relation has been satisfactorily made out between the scope and the fidelity of testimony. A study by Meumann and Schrobler of children's testimony regarding pictures, objects, models, etc., showed that intelligent children observe more systematically, 1st, forms; 2nd, colors; and 3rd, activities; also that dull children are more easily inhibited in giving testimony by the wealth of things to report.

(3) Tests of apperception by means of brief tachistoscopic exposure of words, sentences, pictures, etc., show that some children have a marked tendency to fill in an imperfect perception from imagination ("subjective" type), while others limit their testimony to the things definitely observed ("objective" type).

The relation of subjectivity and objectivity to grade of intelligence is not known.

g. Tests of memory. The disposition or tendency of experience to be revived is of importance for endowment. Experiments on the reproduction of ideas show that there are individual differences in (a) the time relation, (2) the form of the association, (3) the manifold clearness of the reproduced ideas, and (4) their wealth and manifoldness.

Memory tests are either tests of immediate memory or tests of persistent memory (delayed recall).

Tests of immediate memory have been made by many investigators, including Bolton, Binet, Bischoff, Peters, Vieregge, and others. The results, in so far as they relate to intelligence, may be summarized as follows:

(1) Immediate memory is more symptomatic of maturity than of intelligence. Series of disconnected words are suitable for this purposes. Sentences are less satisfactory, but are usable.

(2) Immediate memory for certain kinds of sense material is important for special talent. Musical talent, for example, may depend largely upon memory for tones, or talent for drawing may have its basis in exceptional memory for form, colors, etc. It is desirable, therefore, to test immediate memory for various kinds of sensory material.

(3) Typical individual differences have been found which justify our distinguishing two types of memory, the analytic and the synthetic.

(4) Gifted and dull children differ in the relative amount of concrete and abstract material remembered, the less intelligent the child the greater the difficulty in remembering the abstract.

Tests of persistent memory require so much time that they are ordinarily not serviceable. We can learn something of the persistence of retention, however, by testing the child's memory for subject matter which has been memorized in school. Even school tests, therefore, have a certain place in a scheme for measuring the intelligence of school children, though of course

we should use for this purpose only that material which has been quite generally taught as memory work to children of the age at which the test is used.

h. Tests of association. Meumann regards association tests as among the most important methods in the analysis of endowment, since they are applicable with nearly all the higher thought processes. The association-reaction experiment which uses a list of stimulus words for provoking association has been widely employed. The results vary according to conditions. The stimulus word can be presented either visually or orally, and the subject may be asked to answer "as quickly as possible" or he may be allowed to take all the time he wants. The direction to answer quickly tends to make the association more mechanical and less reasoned, to increase the number of "klang" association, etc. This form of the experiment is not suitable for testing intelligence, but it has proved useful in the study of certain abnormal mental states, such as hysteria, because it tends to drag submerged and inhibited ideas to the surface.

Another form of the association experiment is exemplified by the test of "writing twenty words" (Binet). Tests of this kind display ideational types and give us interesting information regarding the sort of language in which one thinks. It is desirable in this experiment to follow the example set us by Binet of having the subject give an introspective account of the associations which have determined his list of words.

It is in the investigation of those associative activities which are concerned in the higher thought processes that intelligence tests have met with greatest success. Association tests used for this purpose fall into the following groups.

(1) Tests of a subject's facility in the logical ordering of concepts. This includes the whole-to-part, the part-to-whole, the general-to-particular, and the particular-to-general tests. In all such tests gifted children greatly excel the dull. In the particular-to-general test, for example, dull children subsume the given concept under a distant general class, intelligent children under a proximate class.

(2) The definition of words. This tests the power to give

verbal expressions to the content and to the connection of ideas and concepts. Binet shows that children who have a mental level of five or six years nearly always define familiar objects in terms of use, and that with increase of mental age the tendency to define in terms superior to use becomes more prominent.

Pohlmann's study is the most extensive qualitative investigation of children's definitions. By individual tests Pohlmann has secured from a large number of children's definitions of eighty words belonging to ten different word groups. Classifying the responses according to value he finds that the definitions fall into the following classes: (a) Definition by example, (b) by use, (c) by description, (d) by naming a remote class and giving a few differentiae, and (e) by giving the next larger class and more essential differentiae. "Genetic" definitions, or definitions in terms of origin were also given occasionally.⁴

(3) The opposites test. The ability to give the opposite of familiar concepts develops early, but by employing less familiar words the test may be made as difficult as may be desired. It correlates highly with intelligence.

Burt's association-proportion test is similar to that of opposites. Burt's method was to give three of the four terms of an association-proportion and allow the child to supply the fourth term; for example: "eating : drinking :: hunger : ?"

(4) Tests of the ability to appreciate casual relations. In this test the child is given a list of words which represent causes, and for each he is to give a word that stands for an appropriate effect (or vice versa). Rusk, of England, and Oksala, of Finland, have both found this test to correlate highly with intelligence, though below the age of ten or eleven years this ability is little developed even in gifted children.

(5) The ability to pass from premise to conclusion has been studied by the syllogism test (Burt). For example, the child is asked to criticise the following syllogism:

⁴ The reviewer has experimented rather extensively with vocabulary tests chiefly for the purpose of ascertaining the growth of vocabulary in size from early childhood to adult life, but partly also for the qualitative study of definitions. The results show a remarkably close correlation between intelligence, on the one hand, and both the size of the vocabulary and the grade of definitions on the other.

"One of the children in the class will get the prize;
I am one of the children in the class,
Therefore, I will get the prize."

The syllogism test has not proved a very satisfactory measure of intelligence.

i. Tests of the synthetic functions. The ability to synthesize separate elements or clues, into a logical whole was considered by Ebbinghaus to be one of the most fundamental acts of intelligence. The ability to find the meaning of fragments, to bring distant experiences into relation, is one of the most important elements of success in practical life. To make new combinations means to break loose from habitual association and deep rooted opinions, to free one's self from what is usual and traditional. Applied to the analysis of practical and logical relations this power is called "judgment." It is the basis of the power of critical and independent thought, one of the chief elements of which is the ability to bring the old and the new into meaningful relationship. The mistake of Ebbinghaus was in supposing that his "completion test" could serve as an adequate measure of this complex set of functions. Other tests valuable for this purpose include the "comprehension questions" and the absurdity test of Binet; also the "generalization (fable) test" and the "ball and field" test of Terman and Childs. The "combination" method has many different forms. All of them, however, demand the interpretation of the incomplete, the elaboration of elements or fragments into a logical whole. In order to fulfill its purpose the combination tests must leave room for critical thought. It must not be solvable by mere verbal association, as was too largely the case with the form of test used by Ebbinghaus. There are two kinds of combination activity; that which interprets and that which synthesizes. But only by experimentation can we find out the exact processes which are involved in each. General psychology is not able to inform us. As regards the material used, combination tests employ either language (mutilated text, etc.), or objective representations (pictures, etc.). The following types of the combination experiment have been used.

(1) Incomplete pictures (Heilbronner). Incomplete pictures of an object are shown successively, each picture containing a greater amount of detail than the one preceding, and record is made of the number of pictures necessary to provoke recognition.

(2) Binet's test of "omissions from pictures."

(3) The test of combining or replacing separated parts of a picture (Stern and Bobertag).

(4) The patience test (with blocks, forms, etc.).

(5) Criticisms of drawings which have been rendered unsymmetrical by the omission of parts.

(6) The interpretation of partly covered pictures.

(7) The ink blot test (Kirkpatrick, Sharp, Whipple, etc.).

(8) The interpretation of pictures (Binet.)⁵

(9) The Ebbinghaus test. As used by its originator this test is lacking in logical plan, is not sufficiently graded in difficulty and leaves little for logical thought. Meumann thinks the completion test used by Terman and Childs is preferable.

(10) Ziehen's "particle method," in which the subject is asked to complete sentences of the following type: "Although the dinner is burnt"

(11) Massolon's experiment, which consists in having a subject construct a sentence containing three given words. This has been incorporated in the Binet-Simon tests.

Meumann used this test in a slightly different form. Two words are given which provoke either of two types of possible performances—the one obvious, but indefinite (*nichtssagende*), the other definite and pertinent. For example, in response to the stimulus words "donkey—blows," the dull child usually gives some such obvious sentence as "The donkey receives blows." A typical response made by bright children is "The donkey receives blows because he is lazy." Similarly, the stimulus words "sky—red" may bring the response "the sky is red," or the more intelligent response "the sky is red at sunset." A good method

⁵ It may be added that story pictures are also suitable for this purpose. The ordinary "moving picture" makes a certain demand upon the combination activities. The reviewer is at present occupied with an experiment looking toward the standardization of a series of picture stories as a form of completion test.

in using Massolon's test is to give key words (Stichworten) which suggest a definite relationship; e. g., "desert—river—lakes." The bright child ordinarily sees the relationship and responds by some such sentence as "there are no rivers or lakes in the desert." The dull child may say "I went to the desert, and I crossed a river and then I saw some lakes"; or "Africa has deserts, rivers and lakes," etc. Massolon's idea may be applied by having children invent an entire story from a series of key words, as for example, "horse—burned—child alone—wise monkey—parents thankful—reward." Meumann has used this test and finds it well adapted to bring out difference in both the grade and the quality of intelligence. He classifies the responses into eight "types."⁶

(12) A somewhat similar test used by Groos consists in saying something to the child and noting the kind of interrogation it provokes. For example, "A bullet broke the lamp." The questions this test provokes with bright children are more definite and more pertinent than with dull.

(13) Building words out of given letters. This test has been frequently used, but has not proved a satisfactory measure of intelligence.

(14) Some of the tests of invention partake of the nature of combination tests, as in the case of those which give the subject a problem whose solution depends upon making the appropriate combination of experiences which he has already had. Fischer's test of inventive ingenuity was as follows: "Some birds are eating the seeds in a man's garden; what shall he do to stop them?" Suitable tests of this kind are much to be desired, but they are hard to devise and are not easily graded quantitatively.

j. Tests of abstraction and judgment. These functions

⁶ The reviewer would suggest that we have here a partial explanation of the differences which have been found between dull and bright children in ability to read. All reading requires a certain amount of filling in by the imagination. It would be impossible for the text to give definite expression to every implication, and indeed to do so would bore the intelligent reader. Much of the pleasure of reading comes in the mental exercise of supplying what the text suggests but does not express. It is no wonder dull children can not develop literary appreciation. They lack the power of interpretation. Veiled hints, allusions and subtle figures of speech make no impression upon their intelligence. Their ideas lack fluidity, are wooden. Their thinking is like block building.

are brought into play to a greater or less extent in many of the tests which have already been described, as in tests of memory for abstract as compared with concrete terms, comparison of things from memory, finding similarities, interpretation of fables, etc. Other tests more specifically for this purpose include definition of abstract terms, Binet's "problems of fact," distinguishing between abstract terms which have something in common, etc.

k. Tests of language mastery. These include vocabulary tests, tests of language usage, tests of ability to form sentences, to name familiar objects, and the like. Meumann believes that some of the critics of current intelligence tests have underestimated the dependence of language mastery upon general intelligence, a belief which the reviewer fully shares.

1. Tests of emotional and volitional traits. The tests which have been discussed thus far are tests of intelligence; but intelligence alone does not determine endowment. From the elementary school to the vocations of adult age, success is dependent upon emotional and volitional traits. Mental activities which are disagreeable tend to be inhibited; the agreeable are pursued and intensified. An interesting illustration is given by Gustav Major, the case of a boy whose intelligence was normal but whose conceit and indocility made him in effect a mentally subnormal child.

Among the tests which throw light upon the emotional traits are the following.

(1) Tests of suggestibility. The work of Binet and Stern is important here. The kind of suggestibility which relates to sensation and perception (sensorial illusions, etc.) seems to bear no uniform relation to intelligence. Tests which display the child's susceptibility to influence are the best. Four lines of suggestive influence have been investigated: suggestion by contradiction, suggestion by the force of a directing idea, suggestion due to aroused expectation, and various form of suggestion in the report experiments.

(2) Tests of educability, or the ability to learn, may also throw light on emotional and volitional traits, for educability

is dependent not only on "nervous plasticity" but on volitional endowment as well.

(3) The will may be tested on the idio-motor side by the experiment of Rossolimo. The experimenter tells the child to count (or tap) in unison with him. After a while E stops and note is taken of the number of additional counts (or taps) which the child makes before stopping. Or E skips a few numbers in counting and notes whether the child skips with him or proceeds in regular order.

(4) The emotions may be tested more directly, as for example along ethical lines, by getting the child to express his preference between given actions, pictures shown, etc. It is also instructive to question children about the games, books and occupations which they prefer.

(5) The power of self-criticism is related to volition and may be tested by having the child pass judgment on his own performances. All who have done this in the use of the Binet tests with defective children know that low-grade intelligence is nearly always accompanied by weakness of the power of auto-criticism. In a sense, every act of intelligence is at the same time an act of volition, and it may mirror also emotional and moral traits. Lack of ordinary uniformity or constancy in the child's efforts (a volitional trait) is one of the best signs of defective intelligence.

(6) Systematic observation of the child's behavior as regards self-control, stereotyped actions, ties, etc., will also sometimes throw light on the child's intelligence. The tendency of feeble-minded children to stereotypy is often brought out in the association-reaction test, the vocabulary test, or almost any other form of repeated test.

(7) The range of intellectual interests is also an excellent indication of the degree of intelligence. Dull children have few interests and as a rule do not pursue them with constancy except under permanent outside stimulation. It is difficult, however, to devise a test which will display the child's range of interests. The questionnaire devised by Healy and Fernald for this purpose is far from satisfactory.

(8) It would be well if we could get at certain formal conditions of the intellectual processes, such as the selective activity of ideals and feelings. Little has been accomplished in this line.

m. Tests of mental correlations. It remains, finally, to investigate the connections which exist among the various elements of endowment in order that we may know how they function together. Memory, for example, can support the higher thought processes by affording an abundance of material with which to work. On the other hand, a too highly developed desultory memory may inhibit higher forms of thought by filling up consciousness with exact reproductions of what has been experienced. The relations of this sort among the elements of endowment are hardly the same for two individuals, but we must work out the main lines of influence if we would know the etiology of genius. We may call this the "synthetic psychology of endowment." One method of approach is correlational psychology, but it is one from which Meumann does not expect much light. It is not clear, he says, that it will be able to carry us very far beyond the usual mere exposition of actually existing qualities, powers and capacities, or give us a demonstration of their dynamic relationship.

Summarizing this discussion, we may say that it is the task of the psychology of endowment to explore the following divisions of mental life, together with their physical basis.

(1) Physical equipment. The size of the head, strength, rapidity, etc.

(2) The sensori-motor groundwork of mental life, including acuity of the special senses, motor co-ordination, etc.

(3) Conditions of the psycho-physical energy (reaction time, "tempo," sleep, the curves of fatigue and efficiency, etc.)

(4) The attention problems, especially the significance of the analytic and fixating powers of attention, and the influence of attention upon associations.

(5) Sense perception and observation, particularly in relation to intelligence.

(6) Memory.

(7) The association of ideas, including rapidity of associa-

tion, wealth and originality of ideas, ideational types, etc.

(8) The combining and the elaborating (*verarbeitenden*) forms of thought ("combination," practical ingenuity, productive imagination, critical judgment, abstraction, etc.)

(9) Language mastery.

(10) Relation of the emotions and the will to intelligence (suggestibility, educability, interests, ethical and aesthetic judgment, sense of veracity, justice, exactness, etc.)

(11) The functional relationships existing among the individual traits which together constitute endowment.⁷

⁷ This article will be continued in the next number of the Journal.

AN ANALYSIS OF DR. KUHLMANN'S ATTACK ON "THE MENTAL HEALTH OF THE SCHOOL CHILD"¹

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Kuhlmann's violent strictures on "The Mental Health of the School Child" are so obviously inspired by personal animus and are so defamatory in character that I should give them no further notice, were it not for the fact that many of the statements are not only misleading and irrelevant, but utterly and inexcusably false and irresponsible. The perversion of the facts in some cases where the statements do not permit of misconstruction indicates either that the reviewer is woefully careless of his facts or that he is willing deliberately to distort facts in order to misrepresent or malign the writer. I cannot allow material distortions or misconstructions to go unchallenged. The reviewer devotes the larger part of his review to an analysis which is literally "shot full" of blunders and animadversions and vilifications.² Let me consider his severest strictures and most glaring misapprehensions.

1. The reviewer charges that the book is amateurish because, in part, literary references are supplied in some chapters but not in others, and he fails to see the reason for this discrimination. He particularly dwells on the lack of references in Chapter VIII on "The Present Status of the Binet-Simon Graded Tests of Intelligence," and complains that I fail to give any references in this chapter except to "a study previously published and reprinted³ in this book by the author." The reasons for the lack of uniformity should be obvious to any fair-minded reader. First, the chapters which lack bibliographies are, almost without ex-

¹ Journal of Psycho-Asthenics, September, 1914.

² The following suggests the diatribe rather than the impartial scientific review: "The author is lamentably ignorant of the theory and technique of a scale of tests like that of Binet-Simon."

³ The statement that this "study" is reprinted in the book is false. Only one chapter of the *Experimental Studies* (which is the citation in the text) is reprinted in *The Mental Health*.

ception, reprints of public addresses, and it is not customary to encumber public addresses with lengthy bibliographies. In these chapters I was following the best precedent in omitting long lists of references.

Second, Chapter VIII was prepared for the 1911 meeting of the American Psychological Association frankly as a brief summary of some of the conclusions arrived at in a larger work which I had not at that time brought into print. This will explain why reference is made to the work in question, and why "more than half of the nine pages of this chapter is devoted" to the "author's own" publication. I fail to see why it is illegitimate or why an author should be censured for summarizing some of his own conclusions from a larger experimental work and present them in public, even if it requires "more than half of nine pages" to do so. To deny such a prerogative is nothing short of idiotic.

Third, the "several hundred publications that should have been consulted for this chapter" were not consulted for the very excellent reason that "several hundred publications" dealing with the Binet scale were not in existence at the time the chapter was prepared (October, 1911). The date when the address was delivered is explicitly stated in the text. Evidently the reviewer does not regard dates as of any moment. An examination of the chapter, however, reveals the fact that reference was actually made to the parallel findings of a few investigators whose publications were available at the time of the writing. The source of the reviewer's animus is evidently the peevishness which he feels at not finding his own discussions of the Binet scale cited—but his discussions were not in circulation when the chapter was written. Let it be said, however, that the appearance of later contributions in no wise alters the strictly experimental findings of my work in 1910 and 1911, although they may modify the inferences to be drawn from some of them.

2. The reviewer alleges that I have judged "the status of the tests" from "examining 333 epileptics." This statement is without foundation. Available confirmatory results are cited in Chapter VIII, where reference is likewise made to the **Experi-**

mental Studies where the data of still other writers are also tabulated. Moreover, I have been engaged continuously since 1910 in the mental examination of cases by means of the Binet and other mental tests, only a very few of which are epileptics. I have used precisely the same methods of giving the Binet tests to these cases as to the epileptics. Eventually I shall hope to get this material in print, and we shall then know definitely to what extent the great variation in the Binet tests found in my earlier study, is due to the peculiar organization of the epileptic mind, and to what extent it is due to a variation in the difficulty of the tests. Moreover, it is not amiss to say that years of almost daily use of the scale for the purpose of **practical diagnosis** with a great variety of cases in university and public school clinics entitles the user to the right to express a professional opinion, and gives him an insight into the value of the tests for purposes of diagnosis which it is impossible to get simply by collecting and analyzing the experimental results of the testing done by others—usually grade teachers. The reviewer evidently considers that the opinion concerning the value of diagnostic appliances by a physician constantly engaged in diagnosing cases is of less value than conclusions drawn by a research worker from tests carried out by nurses. If that is his opinion I shall permit him to hold it without vilifying him for so doing.

3. "The author could not qualify as an expert according to his own definition." I am not aware that I have ever posed as a paragon of clinical skill. On the contrary, it was the realization of the importance of the practical consequences of mistaken mental diagnoses and my own limitations in attempting to practically diagnose cases for a public school system in 1909 that led me to the study of the training needed by a psycho-clinical examiner, particularly for the schools, and which caused me to pursue during a period of years a course of training embracing: First, study in institutions for feeble-minded, epileptic and insane cases; second, visits to special classes and psychological clinics in various kinds of institutions in a considerable number of cities in the mid-western and eastern parts of the country (it was while on these inspection trips I became disgusted with the work of the

amateurs); third, special work in neurological, psychiatric, and speech clinics in a number of the larger medical centers; fourth, the study of various medical specialties in medical schools; fifth, consultation work in practical mental diagnosis in university and school clinics, and supervision of public school cases; and, sixth, study of the medical, psychological, educational, sociological, and genetics literature bearing on my problems. The reviewer's actual clinical (sic) experience is, I believe, limited to laboratory psychological research work in an institution for the feeble-minded and epileptic. It is from the realization of my own limitation that I have come to believe that I know the requirements in the field of practical psycho-clinical diagnosis—and I have been speaking only concerning diagnosis and not concerning the mere administration of tests, as the reviewer frequently mistakenly assumes. My vision is toward the future, not the past, nor even the present. I am interested in constructing standards of preparation for the most expert type of psycho-clinical examiner of the future, and not for the type of mediocrity which is now too prevalent in most of the public schools and juvenile courts. That no one can today qualify on the standards set up is beside the mark. Could the physician trained one hundred years ago, or even fifty or twenty-five years ago, qualify as a skilled practitioner today?

4. I did not insist, as the reviewer alleges, "that the general and technical training of the psychologist are necessary to make a reliable Binet-Simon tester," qua Binet tester, but I do insist that such training is essential if he would also qualify as thoroughly trained for the difficult work of mental diagnosis.

5. The reviewer implies that my schema for clinical study is worthless, because similar schemas "have never proven of great value in practical work." Unfortunately he gives no facts to prove the validity of his conclusion. It only represents his own private opinion. Over against this dogmatic assumption we have the well-nigh universal practice by the ablest clinical examiners in the leading hospitals and medical schools of the country who are using analogous schemes of investigation. I have not only used such schemes in conjunction with medical ex-

perts in a number of such institutions, but have for years made profitable use of the general scheme of investigation which our reviewer singles out for condemnation. Such experience is not without value. It will be interesting to know what the reviewer's conception is of a clinical examination in clinical psychology and in medicine. I am not aware that he has made any contribution in this field which makes his private judgment of more value than the settled practice of the institutions whose specialty is diagnosis, namely, the medical schools.

6. "The epileptic has a special type of mind which causes exceedingly irregular results in Binet-Simon testing. Apparently the author has not discovered this fact, or regards it as irrelevant." These statements may be taken as typical of the reviewer's reckless regard for accuracy of statement and his apparent desire deliberately to leave erroneous impressions in the mind of the reader. He permits the implication to be made that he is the discoverer of the fact that there are abnormal irregularities in the epileptic's mind. Unless I mistake, my early publication on the epileptic was the first experimental study which showed this fact (See *Experimental Studies of Mental Defectives*, pp. 18, 20 f, 53, 106ff). Need I remind any one who has carefully read the book that attention was explicitly directed to the irregularity of the mental development of the epileptic in the very chapter which our reviewer, at no time over-cautious of the accuracy of his statements, criticises: "we are able to frame a picture of an interesting spectacle: a case of **mental wreckage**, whereby the integrity of various mental functions has been impaired in various levels of mental development, and whereby various lower psychic levels have been swept away while the higher levels remain intact. The mentality of epileptics makes up a constellation that is extremely irregular" (p. 193; also p. 190). Our reviewer calls to mind Karl Pearson's lament: "It is a singular phase of modern science that it steals with a plagiaristic right hand while it stabs with a critical left."

That I did not regard this fact as "irrelevant" is demonstrated by the fact, first, that I sought to corroborate my findings by comparison with the results then available based on

testing other types of children (particularly normals); and, second, by the fact that I have deliberately refrained from revising the scale on the basis of the testing of mentally abnormal individuals.

7. How uncrupulous the reviewer may become in juggling with facts may be illustrated, again, from the following statements: "He concludes that the typical epileptic category is that of the condition of moronity * * * * while the typical feeble-minded station is that of imbecility." "That the epileptic sent to an institution might be selected cases in any serious degree he does not think likely."

What are the facts in the indictment? The conclusion drawn by the writer as to the comparative intelligence distribution of the epileptic and feeble-minded was simply an empirical statement affecting the groups of epileptics and feeble-minded who were actually studied. The reviewer has taken the liberty of generalizing the statement and applying it to the whole group of institutional and non-institutional epileptics and feeble-minded.⁴ The writer assumes no responsibility for the reviewer's unwarranted inferential leap. Moreover, had he read the text with not only more regard for its spirit but for statements made of a strictly unequivocal character he would have avoided making the second statement quoted above, which is positively false. On page 189 of the text we read: "The institutional cases at Skillman may not be representative. Our curve in general is valid on the assumption that the epileptics tested are typical (I should not like to think that any worker in this field is so ignorant that he does not know that the same statement applies to institutional cases of the feeble-minded). According to the theory of the probability surface we are justified in regarding them as typical if the selection represents a chance distribution. But it is possible that two selective processes have operated in a way to distort both extremes of the curve, etc. * * * We shall not be able definitely to settle this point until other institutions have undertaken similar studies on a large scale." Possibly such

⁴ He has apparently taken a similar unwarranted liberty in discussing my experimental findings in the dental experiment, for which I here publicly disclaim all responsibility.

statements as the above justify my critic in accusing me of "dogmatism," and of overlooking the selective influences which determine the distribution of cases in institutions! The justification of the reviewer's tawdry aspersion ("Alas for the profession that this should come from the 'expert clinical psychologist' ") can be safely left with the fair-minded reader.

8. My critic takes me to task for my criticism of certain revisions of the Binet scale: "Superficial work like this is misleading and tends to arouse contempt for the slipshod standards of scientific work obtaining in this field of scientific psychology." What are the fact in support of this indictment? I shall here prefer only those charges which, by implication, my critic applies to his revision of the Binet scale. I did him the courtesy in the original presentment not to single him out for special mention, but he has thrown down the gauntlet (in a peculiarly ferocious manner) and I am forced to meet the issue. First, I have contended that the revision or establishment of a scale of intelligence for normal children must be based on the testing of normal children. Therefore, I have refrained from revising the scale on the basis of my own results with abnormal cases. Kuhlmann has produced a revision for normal children which is based on the testing of feeble-minded children, at least so far as concerns his **own distinctive experimental contribution** to the revision—with the negligible exception of "forty normal adults" who were given **only two** higher age tests, only one of which is a Binet test. The reviewer contends that had I said "**a few** (blackface mine) of the changes made were based on the performances of feeble-minded the statement would have been correct." In his "Revision," however, he emphasizes that "the present revision * * * * is **largely along other lines**" (blackface mine) than the revisions of others. If so, what is the scientific basis of his changes **largely along other lines** if not his own experimental work on the feeble-minded, for it is not apparent that at the time he had done any Binet work on normal children ("forty normal adults" excepted in the case of only two tests). He eliminated 11 tests from the 1908 scale, added 9 new ones and shifted six, but he neglected to state specifically that only

a "few" (sic) of these changes were based on his own work on the feeble-minded, nor did he so state in respect to the detailed directions for giving the tests which he supplies and which, so far as he has altered the procedure of others, must be based on his work on the feeble-minded, or otherwise merely spun from the "inner web of consciousness." In other words, he did not specifically state that his revision is largely based on the work of others, and only to a slight extent on his own work, perhaps at the time entirely confined to the feeble-minded, so far as the Binet scale is concerned.

Second, I have charged that in some "instances age-norms have been * * * supplied although not a single child has been tested in those ages." This statement applies absolutely to the following ages in my critic's scale: "age three months," "age six months," "age one year," and test 1 in age 2. These norms on the reviewer's explicit admission, "were devised on the basis of these observations (observations by writers on children) after a careful searching through the literature on them, and supplemented by a few chance observations of by own on normal infants * * * ." "The norms for them are necessarily based on a small number of cases in a number of instances." Here we find a confession that norms have been embodied in a scale, not on the basis of definite experimental tests, but on the basis of recorded observations in literature and the author's own **few chance** (sic) observations, and this is the type of science that my critic attempts to defend, although he attempts to impugn my scientific competency because I have stated certain experimental findings which were based, not on a "few chance observations" but on carefully controlled experiments on 27 children receiving mouth hygienic treatment. It may be left to the reader to determine who is guilty of "dogmatism." Can it be that my critic has developed such a degree of hypermetropic vision for motes in my work that he has become profoundly myopic for beams in his own work? Any one knows that the observations in the genetic literature are usually based on the study of **single** cases. I shall let the reader pass on the validity of my charge

that such work is "superficial and "tends to arouse contempt," etc.

I have further charged that norms established as the above have been (from no definite tests, or only from a few tests) are "appropriated and used by a large number of uncritical Binet testers who are neither psychologists nor scientists, and thereby pupils are judged or stigmatized on the basis of unproved assumptions." What are the supporting facts? First, I have seen Kuhlmann's lowest age tests given in baby clinics by "uncritical Binet testers" who have assumed, and with justice, that the accuracy of the placement of the tests has been demonstrated, because they have been embodied in a scale of tests having the semblance of proved reliability. Second, my own use of these tests, in baby clinics and elsewhere, has failed to show that they have the value for grading the intelligence of young infants that would justify one in placing them in an age scale. Third, one of the prime organizers of the baby clinic who has used the tests extensively with infants tells me that she has discarded the tests entirely because they are not workable. My charge of "unproved assumptions" is based on first-hand observations and tests, not "dogmatism."

9. My critic has very much to say about my dental tests. Here, again, he demonstrates admirably that he is a past-master at fighting men of straw, and windmills a la Don Quixote, or of ignoring or perverting facts clearly stated, or of presenting his own assumptions as universally accepted facts.

"No one would expect a very large improvement in the course of several months following dental treatment." Does the reviewer make this statement as a fact or as his opinion about an alleged fact? Several leading oral hygienists who are known to me make precisely this expectation. Possibly these people are **no ones**, in the reviewer's estimation.

"We do not know whether they (the tests) measure intellectual efficiency at all, for no norms at all are given." My reply is that we do not determine whether a set of tests measure "intellectual efficiency" by consulting "norms," but by examining the character of the tests which are employed. What the tests

measure can only be determined by a critical examination of the tests themselves. That question has absolutely nothing to do with the subject of norms.

"Only five different tests were used," while I claim that "in the Binet-Simon scale the number of tests for each age-group should be increased from five to ten in order to make those tests reliable." "These tests (my dental tests) were group tests. The author has warned us before that the results of group tests are not reliable." The reviewer demonstrates conclusively either that he has not read the text with ordinary care or that he has no conception of what I mean by clinical examinations and the requirements which I propose for them, in contradistinction to mere mental tests. He appears to labor under the delusion that the tests I gave the dental squad were clinical tests, and that I so regarded them, and that therefore I should apply to them the standards which I apply to a clinical examination. But I have nowhere claimed that the dental tests were conducted as clinical tests. On the contrary, I deliberately carried them out as group tests, under the usual rigid conditions applying to any kind of group testing in educational or experimental psychology.

The reviewer accuses me of maintaining that the "results of group tests are not reliable." This statement is an inexcusable perversion of the facts in the case. What I did say was that "Norms of mental functioning established by experimental or educational psychologists by group tests on squads of children may have little practical value as clinical tests" (p. 220). That this statement was not made dogmatically, as the reviewer would fain have the reader believe, appears very clearly from the following statement: "At any rate, some one should make a comparative study to determine whether there is any difference between norms established by group tests and norms for the same tests established clinically" (p. 220).⁵ "It is quite practicable for the

⁵ In contrast with the guarded character of the above statement, behold the following recent pronouncement of our professedly temperate critic, made without furnishing a single shred of supporting fact, but suggesting that "the reviewer's actual experience" had "positively and emphatically" proved the same: the development of intelligence "comes practically to a stop at the age of fifteen." Experimental data now in the hands of the writer will show, "positively and emphatically," that this statement is "dogmatism" ineffable.

educational psychologist to give lengthy tests because usually during any one sitting he attempts to measure only a limited number of traits. But the psycho-clinician, in order to get a comprehensive picture of his case, may test a very considerable number of functions" (p. 221). The difference between the reviewer's conception of a clinical examination (if indeed he has one⁶) and my own is that he thinks it sufficient merely to give a large number of tests—"twenty to thirty," "with several age-groups"—while my plea is that we must "survey a maximal number of fundamental functions"—not the same but different functions—and the more of these we have at a given age-level the better, and not merely give a large number of tests in various age-levels (wide-range testing), many of which may test precisely the same functions. I do not advocate increasing the Binet tests to 10 for each age, "in order to make those tests reliable," as individual tests, but in order to afford a comprehensive survey of different functions for an accurate clinical picture.

"The author has * * * insisted that in order that the results of any test may be reliable the tests must be given by a trained psychologist." The reviewer again misquotes me. What I did say was: "psycho-educational amateurs * * * may be competent to administer formal psychological tests" * * * but "we must not, therefore, deceive ourselves with the thought that we are thereby training competent psycho-educational diagnosticians." My critic is prone to put into my mouth any words that meet his fancy.

By implication he objects to some of these tests being given (through force of circumstances) by proxy. This comes with singular grace from one who has drawn important deductions with respect to his own Binet revision on the basis of tests made by proxies—grade teachers. He avers that the writer "does not tell us anything further about the proxy." That this accusation is groundless the reviewer will discover if he will consult the unabridged original, to which he was referred in the chapter in

⁶At times he contrasts clinical study with mental tests or the Binet tests as though clinical tests, mental tests and the Binet tests were mutually exclusive. At other times his discussion seems to indicate that the clinical examination is synonymous with history taking.

question, but which, evidently, he has not seen, although he does not hesitate to pass damaging judgment on the whole research. Such are his conceptions of the scientific reviewer's high functions.

"The statement as to the time interval between dental treatment and the giving of the several series of mental tests is very indefinite." If the reader desires conclusive evidence that the reviewer is utterly incapable of writing an accurate, reliable, impartial review, let him consult page 277, where the precise date of every sitting is given.

"Only twenty-seven pupils were tested, but the author told us that in order to establish reliable norms for the Binet-Simon tests not less than a hundred cases for each sex for each age must be tested." A cursory reading of the book by any fair-minded judge will show that I did not set myself the task of establishing "reliable" sex or age "norms" in the dental experiment. On the contrary, I proposed merely to measure the pupils' improvement by means of a comparison of their own successive scores.

The reviewer has not made any discovery, as he seems to think, when he says that there were other factors than the dental treatment which influenced the results, or when he says that a control squad should also have been used. The writer again and again has called attention to both of these facts, and has made allowance for them in the conclusions drawn (e. g., in *The Mental Health*, pp. 280, 288). Had the reviewer been actuated by motives to play fair with the author he would have frankly stated thus much. The only other construction is either that he has merely skimmed a book which he is attempting to scientifically review, or else he has deliberately set himself the task of discrediting the credibility and competency of the writer.

My critic alleges sarcastically—and with an unconcealed consciousness of his own superior knowledge—that "from such an experiment, made under such conditions," the writer has "drawn conclusions, the results of which 'are of far-reaching importance to the state and the nation.'" My reply is two-fold: First, I did not base the conclusions wholly upon the re-

sults of the psychological tests, and I pointed this out so clearly that no one except those who set out on a voyage of destruction can fail to see it (p. 289). Some of the supporting evidence consisted of clinical studies made by duly qualified dentists and physicians. The reviewer evidently does not even know of the existence of such data. Second, I do not know that my critic has ever made any contributions to the science of oral hygiene which gives him a special insight into the physical and mental effects of mouth sanitation and thorough mastication. He opposes his private opinion, unsupported even by a pretense of scientific investigation of the problem, to the opinions of a considerable body of men and women who have been investigating the problem for years. Does the reader prefer to follow Kuhlmann's theoretical strictures, or the conclusions of those who have investigated the problem at first hand (dentists, physicians, teachers, psychologists, nurses)?

"The Mental Health of the School Child" makes no claim to perfectionment. It is subject to all the defects appertaining to a publication of scattered addresses. It distinctly disclaimed being a "systematic treatment of one central theme" (see Preface). It has a right to be judged by what it aims to accomplish and not by what it does not pretend to do. Whether it is guilty of the above crimes alleged by my critic can be safely left to the impartial judgment of those who are enabled to read the book without preconception and who are not "telescoping" the book to find fault, or to invent faults not found.

I may close this peculiarly odious task of exposing to public scrutiny what purports to be a scientific review by paraphrasing a statement from the Preface, which our reviewer ironically quotes at the conclusion of his review: "Superficial reviewing like this is misleading and should arouse the righteous contempt of all who love accuracy and fairness and hate perversion and reckless aspersion."

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MINUTES OF THE ASSOCIATION

The thirty-eighth annual session of the American Association for the Study of the Feeble-minded met at Columbus, Ohio, June 16, 1914. The meeting was called to order at 2:45 P. M. by the president, Dr. J. K. Kutnewsky.

Members and guests present were as follows: Dr. and Mrs. Geo. S. Bliss, Mrs. Mary R. Harper, and Miss Edith Bell, Fort Wayne, Ind.; Dr. A. C. Bane, Sonoma, Calif.; Dr. F. W. Keating, Owing Mills, Md.; Mr. Benjamin Bissell, Bel Air, Md.; Dr. G. G. Kineon, Gallipolis, Ohio; Dr. and Mrs. A. R. T. Wylie, Grafton, N. D.; Dr. Velura Powell, Red Oak, Ia.; Dr. Wm. S. Fast, Beatrice, Nebr.; Dr. Geo. Mogridge, Glenwood, Ia.; Miss Elsie V. Jones, Miss Elizabeth McGuire, Dr. L. L. Button, Rochester, N. Y.; Dr. Franklin W. Barrows, Buffalo, N. Y.; Dr. and Mrs. B. W. Baker, Laconia, N. H.; Dr. and Mrs. Carl J. Hedin, West Pownel, Me.; Dr. O. H. Cobb, Syracuse, N. Y.;

Dr. and Mrs. David C. Weeks, Skillman, N. J.; Dr. and Mrs. W. H. C. Smith, Godfrey, Ill.; Mr. Alexander Johnson and Miss Enid Johnson, Dr. H. H. Goddard and Mr. E. R. Johnstone, Vineland, N. J.; Dr. and Mrs. A. W. Wilmarth, Chippewa Falls, Wis.; Miss Elizabeth A. Walsh, New York City; Dr. Geo. Wallace, Wretham, Mass.; Dr. Chas. T. LaMoure, Lakeville, Conn.; Dr. and Mrs. Chas. Bernstein, Rome, N. Y.; Dr. W. E. Fernald, Waverley, Mass.; Miss Helen A. Hill, Darling, Pa.; Mrs. Louise Stegman and Miss Anna M. Peterson, Cleveland, Ohio; Mrs. Cordelia Creswell, Grand Rapids, Mich.; Bertha Griffen, Miss Alice B. Metzner, Mrs. Frank A. Reed, Miss Anna Smith, Detroit, Mich.; Miss Inez A. Cramer and Miss Lula Urquhart, Lapeer, Mich.; Dr. C. S. Little, Thiells, N. Y.; Dr. Wm. J. Hickson, Chicago, Ill.; Mr. Geo. Berber, H. H. Shirer, Mr. and Mrs. Edw. E. Fisher, Mrs. Doran, Miss Jane Doran, Miss Jane Zurmehly, Miss Mary Hunter, Mrs. Maude Murray Miller, Mr. Starr Cadwallader, Miss Helen Millay, Misses Helen M. and Lillian Gallen, Misses Mary L. Dury, M. W. Sutherland, Sibley and Huntington and Mrs. Troutman, Columbus, Ohio, and Dr. A. C. Rogers, Faribault, Minn.

A welcome was given to the Association by George Berber, secretary to Governor Cox, who said in substance that this is the first Association that he had ever known where the members did not assume to know all about the subject in hand, but were engaged in the study of the subject implied by the title of the organization. "I, too, am engaged in the study of the feeble-minded." Governor Cox realizes, Mr. Berber said, the burden to the state and its responsibilities to its 24,000 wards, including the epileptic, insane, criminal and feeble-minded. This does not include those in the county institutions. Of the feeble-minded there are between two and three thousand in the institution, and we realize that there are a good many more that should be here, but we are not equipped for taking care of them. Money matters do not concern us—it is the best solution of the problem that confronts us.

"It gives me great pleasure, in the name of the Governor, and in my own name, to extend to you a hearty welcome to this state."

Dr. A. F. Shepherd, member of the Ohio Board of Administration, also welcomed the Association. He explained that there were four other institutions in Columbus: the penitentiary, the school for the deaf, school for the blind, and a hospital for insane, and there were eighteen others in the state coming under the Board of Administration. On July first, a Juvenile Research Law will go into effect. This new department will act as a clearing house, not only for those who are defective mentally, but physically as well. Homes of the children sent to it will be investigated, a study made of their heredity, their environments looked into, records kept of everything pertaining to them, and after such examination or investigation, the children will be disposed of as it seems wise and proper.

"In the name of the Board of Administration," Dr. Shepherd said, "I welcome you. I take pleasure in extending you the key, not only to this institution, but to every other institution in the state."

Dr. Murdock responded, commenting on the prosperity of the state of Ohio. "Its institutions stand out pre-eminently in the country. I congratulate you," he said, "on having such an institution as the one we have here, and the man at the head of it, Dr. Emerick."

The following persons were elected to membership:

Active: Dr. Max G. Schlapp, New York City; Dr. Chas. T. LaMoore, Lakeville, Conn.; Dr. Walter B. Swift, Boston, Mass.; Dr. W. S. Fast, Beatrice, Nebr.; Dr. R. Bayard Cutting, New York City; W. B. Reid and Chas. R. Mahady, Rome, N. Y.; Dr. F. L. Keiser, Columbus, O.; Miss Elizabeth A. Walsh, New York City.

Associate: Dr. E. H. Trowbridge, Faribault, Minn.; Miss Mary Hillary, Buffalo, N. Y.

Dr. Rogers explained that active membership entitles one to all the privileges of the association, and the dues were \$5.00. The dues for associate membership are \$2.00, and entitle one to all the privileges, except the privilege of voting.

The following committees were appointed by the Chair: On Time and Place, Dr. W. E. Fernald, E. R. Johnstone and

Dr. O. H. Cobb; on Organization, Drs. Mogridge, Bernstein and Wylie.

The President's address on "Compulsory Education and Care of the Feeble-Minded" was then given.

Dr. Bernstein followed with a paper on "A State's Policy Toward the Care of the Feeble-Minded."

Prof. Johnstone spoke of the Extension Department and its aims, and suggested that the Association appoint a committee which could help in developing and promulgating a policy regarding provision for the feeble-minded, not only in our own states but for the entire country. Prof. Johnstone followed this by a paper, "The Extension of the Care of the Feeble-Minded."

At 8 P. M. the session was again called to order by the President. Dr. Emerick, of Columbus, presented "The Defective Delinquent in Ohio."

This was followed by a paper by Miss Storer on "The Defective Delinquent Girl."

Dr. Rogers called attention to the fact that Dr. Goddard had had some very interesting experiences with reference to two moron boys, charged with murder, and asked for a report on them, which was given. Dr. Rogers read a letter of greeting from Dr. Carson, also a letter from Dr. Shuttleworth, of England, which was in part as follows:

"You seem to be in advance of us in England in the use of the Binet tests, but I am hoping that before long we shall have a greater number of persons qualified to use them, and in my own public school work I have arranged for the lady Assistant Medical Officer to test the children presented for admission to the special schools. I have received the last number (Sept., 1913) of the Journal of Psycho-Asthenics, and shall be glad to become a regular subscriber. I suppose the dollar subscription will suffice for Europe as well as for America, and I enclose P. O. order for the same.

"With regard to an international meeting in America of the people actively engaged in the care of the mentally deficient children, I am sure it would be most

interesting, and I think attractive to those engaged in the work over here if it could be arranged during the summer holidays, that is, in August and September. That would probably not be the best time for you, but I am afraid people here are kept so close to the grindstone that they would hardly be able to get away for the necessary time at any other period. I should like nothing better than to attend such a meeting myself, but at my age I hesitate to make any engagements for so distant an outing, but I should be glad to co-operate with you, and give you information as to the people actively engaged in the work in Great Britain. Just now we are in a state of transition owing to the Mental Deficiency Act coming into operation, and probably in a few months' time there will be an increase of those interested.

"With regard to nomenclature, we in England are very slow in adopting new terms, and I fear it will be a long time before the designation, "morons," becomes current over here as denoting the higher grade cases of mental defect. Moreover, the Mental Deficiency Act will have stereotyped (at any rate for a time) the classification under the headings:

- a. Idiots.
- b. Imbeciles.
- c. Feeble-minded persons (i. e., "morons.")
- d. Moral imbeciles.

These classes of mental defect are defined in Section 1 of the Act, such definitions being a new departure in the construction of Acts of Parliament.

With kind regards, believe me,

Yours very sincerely,

G. S. SHUTTLEWORTH."

Adjourned till morning.

Wednesday, June 17.

The citizens of Columbus provided automobiles for a trip to the State Custodial Farm, fifteen miles distant, on which the

party was headed by escort representing the city of Columbus and consisting of the Chiefs of Public Safety, Fire and Police Departments. A thorough inspection was made of this very important department, which now has a population of about 500 inmates. The defective delinquent problem was met in a very satisfactory manner, so far as the males are concerned. Much of the interest of the visit centered around this feature.

A picnic lunch was served under the ample shade of a grove on the bank of a running stream whose placid waters gave no hint of the devastation its floods wrought only a few months before. The teachers helped to serve the repast so bountifully provided by the School, and a half hour was spent pleasantly in post-prandial toasts, under the leadership of Mr. Alexander Johnson.

The auto ride to the main institution followed and included a drive about the beautiful city of Columbus, and a visit to the new quarters of the Central Board of Administration.

At 3 o'clock P. M. all met in the assembly hall for a musical recital of a high order by the children of the school. The class of music and the careful training elicited many commendatory remarks from the members.

The evening session was called to order by the President at 8:30. Miss Elizabeth Walsh, of New York City, presented a paper on "Ungraded Class Work in New York City, Methods and Results."

This was followed by a paper by Mrs. Cordelia Creswell, of Grand Rapids, Mich., on "Special Schools versus Special Classes."

In the absence of Miss Van Dusen, also of Grand Rapids, Mrs. Creswell told of some special classes in the special schools of that city, illustrating her talk with lantern slides.

A paper on "The Practical Correction of Speech Impediments in the Public Schools" was read by Mrs. Frank A. Reed, of Detroit, Mich.

Dr. Rogers called attention to the fact that an Auditing Committee had been omitted, and Drs. Smith, Powell and Wal-

lace were appointed to act as such committee.

Adjourned till morning.

Thursday, June 18.

The meeting was called to order at 9:30 by the President.

An address on "The Mentality of the Prostitute" was given by Dr. W. E. Fernald, of Waverley, Mass.

This was followed by a paper by Dr. W. J. Hickson, of Chicago, on "The Defective Delinquent," which was prepared for publication elsewhere. The paper was a discussion of what he had found in making Binet-Simon examinations of cases referred to him by the Municipal Court of Chicago. The mathematical results are embodied in the following table, which he presented for the criticism of the members:

Normal, 18—7.34%.

Chr. age., 20.94.

Basal age, 10.83.

Total, 12.70.

Borderland, 20—8.16%

Chr. age, 20.10.

Basal age, 10.42.

Total, 12.27.

Morons, 207—84.49%.

Chr. Age, 18.71.

Basal age, 8.69.

Total, 10.98.

Total, 245.

Dr. Hickson called attention to the case of Harley Biers, a boy twenty years of age, who had arrived in Chicago not long ago, a fugitive from Ohio, who had committed triple murder. This boy suggested the defective delinquent, and upon being given a neurological and psychological examination by an expert in Chicago, was found to have a basal age of eight years and a mental age of ten. He returned to Ohio, and on a plea of guilty was sentenced to death.

Dr. Weeks, of Skillman, N. J., followed with a talk on "Epileptic Equivalents."

Dr. Rogers presented two names for membership, Miss

Alice Metzger, of Detroit, Mich., for associate, and Dr. Kineon, of Gallipolis, for active membership. Elected.

The matter of taking some action in the case of Harley Biers, to indicate the feeling on the part of the members of the Association that a moron had been tried on the assumption that he was normal mentally and responsible for his actions was discussed. While the newspaper evidence indicated this to be the case, the consensus of opinion was to the effect that nothing of practical value could be accomplished at that time.

Adjourned till afternoon.

The meeting was called to order again by the President, at 3 o'clock. The Treasurer read his report which had been examined and approved by the auditing committee.

The committee on organization reported as follows: Dr. H. H. Goddard, President; Dr. Charles Bernstein, Vice President; A. C. Rogers, Secretary and Treasurer. The editorial staff to continue as at present.

Dr. Fernald, of the committee on time and place, reported that they were considering going to the coast next year and have the meeting in conjunction with the exposition. While the plan was looked upon favorably, he asked an extension of time to the first of next January, when the place would be announced.

Dr. Rogers asked the expression of the committee as to some sort of an exhibit from the Association to be sent to the Panama-Pacific Exposition. Certain things could be illustrated by photos, legends, statistics, etc., something graphic, interesting, showing problems involved, and motives. He moved that a committee of three be appointed to consider the matter of an exposition at San Francisco. Motion carried.

A committee consisting of Dr. W. E. Fernald, as chairman, and Doctors Rogers and Smith, was appointed to consider the matter of extension work which is being done by private funds at Vineland, referred to by Prof. Johnstone in his address. The question arose whether the Association wanted to be responsible for that kind of work, and the advisability of having an advisory committee on the Association.

Dr. Rogers: I understand that this is Prof. Johnstone's sixteenth wedding anniversary. I move that a suitable message of congratulation be sent to Prof. and Mrs. Johnstone. Motion adopted.

Dr. Rogers: Dr. and Mrs. Emerick and corps of teachers: We all know how useless beautiful words are, but I think every person who has visited this institution feels genuine pride in the institution as we see it under Dr. Emerick's administration. We all know that he followed a man who, in his prime, was a most remarkable executive. I believe it was generally conceded that Dr. Doran was the most capable, efficient administrator in this Association. During later years, perhaps things were not kept up so well. But for a man to come in, as Dr. Emerick did, and grasp the management as he has done, notwithstanding the momentum it had, seems to me perfectly marvelous; not only has the administration of the business of the institution been placed on a much higher plane, but he has taken charge of something exceptionally difficult to handle and has turned it into a most exemplary feature, the management of the defective delinquent and disturbed cases. We have pride in the Ohio institution. I wish to move a vote of thanks and appreciation for the courtesy and hospitality of the institution, the Governor's private secretary, the Board of Administration, and Dr. and Mrs. Emerick. Motion carried.

Association adjourned.

Treasurer's Report, 1913-1914.

Cash Dr.

Balance on hand June 6, 1913	\$295.87
To Cash Dues, 1909	5.00
“ “ “ 1910	10.00
“ “ “ 1911	22.00
“ “ “ 1912	87.00
“ “ “ 1913	184.00
“ “ “ 1914	17.00
“ Sale of Journals	191.35
“ “ of Binet-Simon Pamphlets	49.38

\$861.60

Cash Cr.

By Printing and Composition Work on Journals..	\$196.08
“ Stock and Envelopes for Journals	207.11
“ Etchings and Engravings for Journals	11.20
“ Postage	19.60
“ Telegrams and Express	2.35
“ Stenographic Work (reporting Lapeer Meeting)	60.00
“ Expenses Acc’t of Panama-Pacific Exposition.	26.15
	<hr/>
	\$522.49
Balance on Hand	339.11
	<hr/>
	\$861.60

REVIEWS AND NOTICES

Mentally Defective Children. ALFRED BINET and TH. SIMON.

Authorized Translation by W. B. Drummond, with an Appendix Containing the Binet-Simon Tests of Intelligence by Margaret Drummond, and an Introduction by Prof. Alexander Darroch. New York: Longmans, Green & Co. London: Edward Arnold. 1914. Pp. VIII+179.

This is a translation of an earlier work published by Binet and Simon in 1907. An appendix giving their 1911 revision of their tests of intelligence, and an introduction by Professor Darroch of the University of Edinburgh are added. Darroch believes that the original aim and purpose for which the tests were devised has been widely misunderstood, and hopes that this translation will tend to correct this misunderstanding. “The main purpose,” he thinks, “of the authors in the devisal of these tests is to furnish to the teacher a *first* means by which he may single out mentally backward children, who upon further examination may also be found to have some mental defect or peculiarity which prevents them from fully profiting by the education of the ordinary school.” The reviewer feels very strongly that Professor Darroch has himself misunderstood the original aim and purpose of the authors. The present volume, at any rate, does not reveal that they intended the tests as a first means, in the sense of a preliminary method to be supplemented by something more decisive and final. The tests are regarded as the chief means of making a diagnosis, to be supplemented in a minor degree by evidence from other sources. Nor is there any indication in this volume that the tests are intended to be used by the teachers for this purpose. Readers of other publications by the authors will know that Binet and Simon




speak very definitely of the need of a special, technical training for those who hope to use the tests in legitimate ways.

The book is divided into five chapters. An introductory chapter deals briefly with definitions of the abnormal and normal, a few statistics on the relative frequency of occurrence of defectives, and interests in the social questions relating to defectives. The second chapter on "Some features of the psychology of defectives" classifies the abnormal into (1) mentally defective, (2) ill-balanced, and (3) mixed type, combining both the preceding characteristics. It discusses the distribution of the mentally defective in the public schools, and describes some of their mental traits. The third chapter is on the "Pedagogical examination of defective school children." The role of the teacher is to select the children suspected of being mentally defective. The amount of pedagogical retardation is to be made the basis for this selection. The school inspector should supervise this selection, and interpret and evaluate the results. Tests of pedagogical efficiency in reading, arithmetic and spelling are discussed, followed by a similar consideration of some tests of intelligence, most of which are included in their system of tests for this purpose. The different grades of feeble-mindedness are defined. The chapter closes with a brief summary outline of the steps to be taken in diagnosing and selecting mentally defective children from among normals. The next chapter is on "The medical examination of defectives." This lays special emphasis on the fact that the physician has no special training qualifying him for making mental examinations any more than the average teacher. Physical measurements, stigmata of degeneration, and physiognomy are discussed as signs or symptoms of grade of intelligence. The conclusion is that they bear some relation to intelligence, but that the correlation is so small that they are of little or no value in diagnosing the exact grade of intelligence in the individual case. The role of the physician should not be to diagnose the grade of intelligence, but, first, to "diagnose the ailments which co-exist with mental deficiency," and second, to "discover the original responsible agent." The latter has mostly only a scientific interest. Mental defectives as a rule do not suffer from any definite illness directly responsible for the mental deficiency, nor respond directly to any medical treatment. Under co-existing ailments epilepsy, hysteria, rickets, adenoid vegetations, and tuberculosis are mentioned. The chapter closes with an outline of a schedule for the medical examination of defective children covering the points they consider important for the physician to inquire into. In the fifth chapter on "The educational and social return of schools and classes for defectives" the utility of the special institutions for defectives and special classes for defectives in the public schools is discussed from the standpoint of practical training and education the defectives receive in these places. A careful inquiry was made into the record of cases at Salpêtrière, and at Bicêtre. They found a great lack of precise information as to the exact grade of intelligence of the cases, their amount of progress while in the in-

stitution, and their record after leaving. From such data as could be gathered they concluded that at Salpetriere twenty per cent. of the girls improved while at the institution, and twelve per cent. were able to work at a trade. At Bicetre three to four per cent. of the boys improved; the per cent. employed after leaving the institution is not known. In another place, however, they point out that such an improvement cannot be attributed to the efforts of an institution, but is a matter of natural development. Thus the educational and social results are very meagre as compared with the efforts they cost. In considering the special classes for defectives in the public schools the same point of view, that the defectives must be trained solely for practical usefulness in society, is maintained, and it is noted that this aim is not followed. Absence of concise records of the nature and progress of the cases is again noted. From the inquiry made they conclude that "Only half of the defectives in an ordinary school reach with difficulty the intermediate course, passing through the different stages in double the normal time." Normal children in the intermediate course are nine to ten years of age. On the other hand, seventy-six per cent. of the children acquire some useful occupation, and they note that "contrary to an opinion which attempts are being made to spread abroad, the ordinary school does render real service to the defective child." The chapter closes with the significant statement that "The essential thing is for all the world to understand that empiricism has had its day, and that methods of scientific precision must be introduced into all education work, to carry everywhere good sense and light."

Faribault, Minnesota.

F. KUHLMANN.



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CONTENTS

Review of Meumann on Tests of Endowment.—By Lewis M. Terman, Stanford University California.....	123
Special Lines of Work and Results Sought.—By Mary I. Douglass, Rome, New York.	135
A System of Teaching Music to Mentally Deficient Children—Some Practical Hints as to Methods. —By Edward Warmeling, Rome State Custodial Asylum, Rome, New York.....	150
Dr. Wallin's Reply to My Review of His "Mental Health of the School Child"—By F. Kuhlmann, Faribault, Minnesota.	154
News and Notes.	171

JOURNAL OF PSYCHO-ASTHENICS

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No. 3

REVIEW OF MEUMANN ON TESTS OF ENDOWMENT¹

BY LEWIS M. TERMAN, *Stanford University.*

B. The Main Results of the Investigation of Endowments.

This section is devoted to a description of the different grades and types of intelligence in the light of the experimental literature summarized in the preceding part of this review.

In contrast with Thorndike, Meumann adheres strictly to the theory of types. Throughout the volume, types are spoken of as though they really represented unitary entities, sharply divided from one another. Borderline phenomena are consistently ignored, even when they are not explicitly denied. Not only do normal and feeble-minded fall into separate types, according to Meumann, but the different grades of these do also. Idiots, imbeciles, morons, dull-normal, normal and supernormal are all described as though they each constituted a group homogeneous within itself and plainly demarcated from the other groups.²

In the first place, children are either feeble-minded or normal. If feeble-minded, they belong to one of the three types,

¹ The first article by Dr. Terman on this topic appeared in the December, 1914, number of this Journal.—Editor.

² It is rather difficult to make out just what considerations have led Meumann to this point of view. Can it be merely the force of tradition? The descriptions of types furnished us by the older French and German psychologists offer, indeed, a striking analogy to the early biological theories as to the immutability of species. It is possible, too, that the prevalence of the concept of psychological types is due partly to the influence of the medical psychologists, for these naturally tend to carry over into psychology the concept of diseases as special conditions, separately caused and different from one another in nature. Many readers will regard it as unfortunate, not to say misleading, that border-line aspects of intellectual differences should be so persistently slurred over in this otherwise admirable treatment.

idiot, imbecile or moron (Debile). Of the normals there are also three types, the dull the average and supernormal. Each of these "types" will be characterized in turn.

1. Feeble-Minded Children.

Mentally defective children are usually physically defective also. This shows itself in height, weight, chest circumference, motor power, girth of head, and sensory discrimination. In the lower grades of defectives tics and automatisms are common. There is often retardation in learning to walk and talk.³ Stuttering and stammering are common. The lower the intelligence type the more the physical defects are in evidence. The ideational content lacks richness and variety, and the thought processes are either slow or abnormally fleeting. Self-confidence may be either exaggerated or impaired. The emotions are abnormally labile and moral stability is weakened.

The author insists that the difference between the feeble-minded and the normal is not purely a quantitative difference, but that every quantitative difference brings with it qualitative differences.

Feeble-minded children must be carefully distinguished from the dull-normal, later to be described. The two belong to "totally different types." The feeble-minded are nearly always physically subnormal, while the merely dull may be physically superior. Moreover, in the case of feeble-mindedness the defect always shows itself in early childhood, while the dull-normal may not appear defective until well toward adult life.⁴

The feeble-minded child, on the other hand, is weak both in judgment and memory, and because his impressions are so fleeting, comparison and association of ideas are rendered difficult. The differences among the three types of feeble-mindedness, however, are very marked (sehr auffallend).

The imbecile is lively (lebhaft), but very confused (zerfahren); possessed of initiative, but completely lacking in sta-

³ For a more recent study of feeble-mindedness in relation to age of learning to walk and talk see C. D. Mead, "Age of Walking and Talking in Relation to General Intelligence." *Ped. Sem.*, 1913, pp. 460-484.

⁴ The latter, Meumann tells us, "often" go through high school and university (!), passing their examinations with fairly satisfactory marks. Perhaps most readers will agree with the reviewer that the extension of the term "feeble-minded" to include such a high grade of intelligence is, to say the least, misleading.

bility; impressionable but of fleeting perceptions; emotions and will are labile, memory is very weak, and judgment is extremely limited.

The idiot "presents a different picture." As defined by Kraepelin, idiocy includes those conditions of mental deficiency whose origin dates from birth or from early childhood. To complete the definition it is necessary to give the characteristics of the different grades of the defect. The low grade idiot may show hardly a trace of higher mental life. His understanding may be far below that of the more intelligent animals. He does not learn to speak a single word or to understand more than a few sentences. Senses and feeling are very subnormal, as well as attention, will and the emotional activities. Walking, or even standing, is learned late, if at all. In all grades of idiocy physical development is greatly retarded.

Here the author presents, seemingly with approval, the differentials as set forth by Paul Moeller (1897). According to Moeller, the idiot has a few "concrete ideas" (*Vorstellungen*), but is entirely lacking in either "concrete or abstract conceptions." There is no association of ideas (*zu association Verknuepfungen und einem Ablauf der Vorstellungen kommt es bei dem Idioten nicht*) and because of this lack of ideational life there are no intellectual feelings. Only sensorial elements and instincts are present. The imbecile has many memory representations and "concrete ideas," a small number of "concrete concepts," but no "abstract concepts" at all. The moron (*Debile*) has, in addition to abundant "concrete ideas," "concrete concepts" in normal number and quality; but "abstract concepts" he forms only rarely or not at all.⁵

⁵ It is unnecessary to emphasize the shortcomings of the above schematization by Meumann and Moeller. That it is unwarrantably rigid, over simplified and essentially wooden is evident enough. It would seem that our concepts of feeble-mindedness still rest largely upon tradition. In their characterizations of different grades of mental defect psychologists are still prone to fall back upon the crude descriptions found in the earlier medical literature. In short, the psychology of mental deficiency needs to be entirely revised.

It is interesting to note in this connection that Meumann himself strongly criticizes the formal schematization with which Struempell classifies the "faults" of children. Struempell's classification, he says, is purely *a priori* and is nothing more than a vague, empty application of Herbartian formalism, worth less than a single given fault traced experimentally to its psychological basis. Meumann's criticism of Struempell applies equally well to most of the psychological descriptions of the feeble-minded.

2. The Dull-Normal.

This type of Meumann's seems to include the cases which are sometimes designated in America as "borderline" cases. As described by the author, dull-normal children are deficient in judgment and self-control. They have difficulty in distinguishing the common elements in complex experiences, the important from the unimportant, the real from the unreal. They fail to see the significance of a situation as a totality. They lack directing ideas. Their thinking is not systematized or effective. Yet they occasionally have fair memory and good power of observation as regards individual things. Imaginative content may be rich, and within a narrow circumference of thought there may be clear interpretation. This type of defectiveness may be first noted in the subject's weak resistance to momentary stimuli. The judgment is weak because previous experiences and considerations do not come forward to exert their critical influence upon present ideas.

In general, the dull-normal type may be described as more or less subnormal in educability (although individuals of this group may be able to profit well from training along limited lines). Attention is variable, slow in adaptation, little spontaneous, easily distracted, quick to fatigue. Memory is likely to be either weak or one-sided. Testimony is inexact. Association is stereotyped, slow, shows little originality, and works poorly with abstraction. The synthesizing powers are weak. If there are disturbances in the emotional life the result is likely to be "moral insanity" or some other type of psychopathic defect.⁶

3. Normals.

Here again are three types, the average, the below average, and the above-average. The leading traits which differentiate normal children may be grouped as follows.

a. Physical traits. These are chiefly differences in the organic processes which underlie the emotional life, such as circulation, digestion, respiration, secretion, etc. Within the limits of normal intelligence such physical differences as those in height,

⁶ Major's five types of psychopathic children are described by the author.

weight, muscular power, vital capacity, circumference of head, etc., have no known significance.

b. The sensory-motor basis. This shows itself in the temporal aspects of voluntary movement, in its accuracy, and in its uniformity when repeated or continued. Experiments indicate that the time relations of movements are special for each individual child. That is, each has his own tempo, which shows itself in everything that is done, including perception, association, and all kinds of work. The tempo does not bear any constant relation to quality of work. The accuracy of movement depends chiefly upon attention, hence the superiority of intelligent over unintelligent children in this trait.

c. Sense perception. Marked defect of the special senses may affect intelligence but slightly (Helen Keller).

d. Sensorial memory. Differences of sensorial memory are of far greater significance for endowment than differences in sense perception. They are particularly important for special talent in music, painting, etc. Some have a weak, some a strong memory for tones, forms and colors.⁷ To become a musician without a strong memory for tones, or a painter without a good memory for colors, is manifestly impossible. Sensorial memory is important also in zoology, botany, architecture, astronomy, and many other fields of work.

Again, people differ greatly in time-and-space orientation. Some individuals are forever getting lost. Drawing ability seems to depend largely upon special power in the retention and handling of visual impressions. Chess players have an extraordinary command over spacial imagination.

Differences in sensorial memory are furthermore important for the reason that they condition the ideational content and give the trend to associations. The latter are influenced by training, and the direction of training is in turn dependent upon original differences in the strength or weakness of sensorial memories. The senses alone do not determine the ideational content, but attention working on preferred material determines it through the effect of practice.

⁷ In passing, the author notes that memory for absolute pitch is far more rare than is usually supposed to be the case.

The amount of practice secured in the handling of any kind of sense material depends in part, of course, upon emotional traits. The emotional element itself, however, is influenced by the greater preoccupation with a given kind of sensory material resulting from superior native capacity in that direction. This, in turn, reacts to give still greater advantage to the preferred elements. This endless circle of influence brings it about that minor differences in sensory preferences may ultimately give rise to immense practical differences in the associations obtaining among memory contents, and in the direction given to apperceptive activities.

e. Observational types. Binet's experiment of having children describe some familiar object, such as a picture, a cigarette, a postage stamp, etc., revealed four types of observers, called by Binet the describing, the observing, the emotional and the erudite types. Although Binet's experiment is faulty in that it fails to analyze sufficiently the mental processes involved, it is nevertheless very suggestive. As regards the validity of the test, the important question is whether an individual type remains constant with change of material and with repetition of the test under different conditions. With certain qualifications this question can be answered in the affirmative.

The main results of the experiments with observational types may be summarized as follows.

(1) All subjects make an effort to simplify the material; that is, they do not give all the details, but condense and interpret.

(2) No two individuals give exactly the same performance.

(3) The typical differences found by other investigators agree fairly well with the classification of types given by Binet.

(4) The observational types represent typical differences in the attitude of different subjects toward the world of things. They result from a combination of differences in intellectual, emotional and volitional traits.

(5) In respect to method of grasping and using sensorial material subjects fall into two types, the analytic and the synthetic. The analytic worker grasps things by wholes, the synthetic worker by details.

The experiments made by Stern, Wreschner, Lobsien and Duerr on the psychology of report deserve to be mentioned here as supplementary to and supporting the above experiment on observational types.

f. The formal qualities of attention. The attention which a subject is able to give may have much or little intensity, much or little power to resist distractions. It may be uniform or labile; fixating or fluctuating; broad or narrow in span; quick or slow in adaptation.

The significance of these attention types for intellectual ability is not always clear. The intensive type probably excels for academic, the distributive for practical intelligence. But that there are exceptions to this rule is shown by the case of the French mathematician, Poincare, who belonged to the distributive type.

Apart from intensity we cannot say what qualities of attention are favorable or unfavorable to intelligence. Each has its advantages and its disadvantages, which vary according to the material. The fixating type has its obvious advantages, but it has the disadvantage that it tends to limit the number of impressions which can be grasped at once. Even the concentrative type, which is marked by ability to resist distractions, may, in its extreme form, have the disadvantage of limiting unduly the circle of ideational associations.

g. Memory. The relation of memory to endowment is much like that of attention; that is, qualitative differences have a marked influence in determining special talent, but no constant effect as regards grades of intelligence within the limits of normality. Each quality has its peculiar advantages and disadvantages. The analytic type of memory, for example, makes a greater number of omissions in recall, the synthetic type a greater number of errors.

Other differences relate to the extent to which the subject relies on mnemonics. Some individuals lean heavily on this aid, others hardly at all. In the learning of sense material, some depend much on the formation of associative connections, others

little. As regards learning rate, there are two types—fast learners and slow learners. The former forget quickly, the latter slowly.⁸

As to the correlation of memory ability with the grade of intelligence, as distinguished from its direction, it has been demonstrated that children of superior intelligence are, on the average, superior also in memory. The reverse, however, does not hold. That is, children with defective intelligence are not always found correspondingly defective in memory.

One of the best studies here is that of Ranschburg, with the word-pair method. A list of twenty or more word pairs was read to the child, who was asked to remember which words belonged together. Then the first word of each word-pair in the list was pronounced and the subject was asked to supply its mate. Using this method with children of different ages and different grades of intelligence, Ranschburg and Vertes found, in separate investigations, that both immediate and prolonged memory increase with age and also with grade of intelligence.⁹ Rapidity of reproduction, however, correlated more closely with age and intelligence than did accuracy.

h. Imagery types and endowment. The importance which Meumann ascribes to mental imagery may be inferred from the fact that his discussion of the subject fills 151 pages.¹⁰

The determination of an individual's imagery type is by no means the easy task it was first thought to be, and many of the earlier views on the subject of mental imagery have been found erroneous. It has been shown, for example, that one's imagery preferences, instead of being constant, vary according to the material. One may rely upon kinaesthetic imagery in spelling, visual imagery in reproducing language, etc. For this reason, sweeping conclusions like those of Dr. Lay as to the general significance of motor imagery for the learning process—con-

⁸ There is decided disagreement as to the relation which holds between rate of learning and rate of forgetting, a number of investigations supporting a conclusion quite the reverse of that which Meumann accepts.—Reviewer.

⁹ Intelligence was estimated by the teacher.

¹⁰ This allotment of space seems excessive in view of the rather doubtful relation which type of imagery bears to grade of intelligence. It is possible, however, that the relation of imagery to qualitative differences of endowment justifies the author's extensive treatment of the subject.

clusions based upon experiments in the learning of a single kind of material—are unwarranted and misleading.

Again, it has been found that mental imagery is markedly influenced by habit and training. Thus, the subjects used in Meumann's experiments on learning all came to rely finally upon auditory and motor imagery. This was especially true of the more intelligent subjects. School instruction, at least as carried on in the German schools, gradually changes the child from the visual to the auditory type.

Considerations of this kind have led certain psychologists, notably Thorndike and Segal, to deny the existence of imagery types altogether. Meumann, however, strongly combats this view. The concept of imagery types is justified, he says, by the following facts.

(1) That between those subjects on the one hand who rely predominantly on a single kind of imagery and the subjects on the other hand who use all kinds of imagery in relatively equal amounts there are no strictly borderline cases.

(2) That imagery preferences have their roots in original endowment is indicated by the fact that they are not entirely washed out by practice. Practice effects in a kind of imagery which one uses only in a subordinate way do not last.

(3) Idiosyncrasies of memory, association and indeed of the whole mental life can often be traced to peculiarities of imagery type. These extreme cases are found by experiment to be practically pure types, not merging into the mixed type to any extent. This holds not for a few individuals, but for many (*grossen Gruppen von Menschen*). The varieties of the mixed type are not to be considered as borderline cases, but as varieties of the basic types.

The author describes in turn each of the main types of mental imagery and their sub-varieties and then proceeds to an evaluation of the methods employed in their determination. As this section is rather technical and of interest mainly to the laboratory psychologists, we will pass at once to Meumann's summary of the results gained by the investigation of mental imagery. His main conclusions are as follows.

(1) Absolutely pure types of imagery are only found in the case of mental defect of pathological origin. Approximately pure types, however, are by no means rare. Absolute lack of a given kind of imagery (*reine Auffallstypen*) is still more common. The noted "lightning calculator," Inaudi, for example, had no visual-verbal imagery whatever.

(2) Each of the various types has its sub-forms corresponding to different kinds of material. Auditory imagery breaks up into imagery for tones, rhythm, human voices, etc.

(3) To say that an individual belongs to the mixed type does not mean that he uses all kinds of imagery in equal degree. Usually one kind predominates while other kinds come into play in a subsidiary fashion. In such cases the dominating kind of imagery is especially in evidence when the subject is engaged in mental "work" (as contrasted with reverie).

(4) We must distinguish "thing" imagery from verbal imagery. One's imagery for things may be visual while his language imagery is auditory.

From childhood to adult life there is a gradual evolution from concrete ("thing") imagery to verbal imagery, though the former does not ordinarily disappear altogether. Auditory-motor word imagery occurs with children mainly as a result of school instruction. Although the progressive dropping out of concrete visual imagery must be regarded as a natural evolution, this does not justify the entire neglect of the visual appeal with older children.

(5) Imagery types are due to native predisposition, and can not be accounted for on the basis of practice. In no other way could we explain the extraordinary activity of a given type of imagery in musicians, painters, etc.; or, on the other hand, the extraordinary amount of practice required by some individuals in order to develop even moderate use of a given kind of imagery.

(6) As regards the distribution of imagery types, the investigations indicate: (a) That most persons use visual imagery for things, and auditory-motor for verbal representation; (b) that one-sided types are more common with children than adults, because the practice which comes with increased age tends to

strengthen the kinds of imagery for which one has a relatively weak predisposition; (c) that girls and women tend more to the visual type than boys and men; and (d) that all types are to a greater or less extent subject to change. Reading and writing favor the development of visual-verbal imagery, and oral instruction the development of auditory-motor.

(7) It is fortunate for pedagogy that absolutely pure imagery types do not exist among children.¹¹

(8) The chief significance of imagery types for education lies in the danger that school instruction will make excessive demands upon a kind of imagery which the child has not developed, or that the teacher may be afflicted with one-sidedness of imagery and so give a one-sided appeal to her instruction. But this does not justify the common opinion that it is necessary or desirable to segregate school children according to mental imagery. Most children belong to the fairly evenly mixed type, and where this is not the case it is better to make a many-sided appeal so as to favor a leveling up process. Life makes us one-sided enough, at best, and the school should contribute rather to a harmonious development of the mental powers.

(9) As regards the relation to endowment, the preference for an imagery type has its roots in a memory disposition for a given kind of sense material, and this in turn gives direction to apperception, interest and emotional attitude. The choice of a vocation probably hinges often on the type of one's mental imagery.

(10) As regards the specific relation to grade of intelligence, opinions differ. Some psychologists deny that any connection exists. Meumann, however, states that highly intelligent children always belong to the mixed type, and that the near-pure types are only found with children whose intelligence is subnormal. He attributes one-sidedness of imagery to a weakness of attention which tends in the subnormal child to the neglect of those kinds of imagery in which the child is least endowed. If

¹¹ Meumann states that in all his experiments he has not found a child of "absolutely" pure type, and that he knows of no certain case in psychological literature.

attention is good, all kinds of imagery continue to be used and differences may be evened up.

The experiments of Duerr-Borst, Watkins and Pfeiffer support this view. Pfeiffer had fourth, fifth and sixth grade children classified according to intelligence into three groups, "superior," "medium," and "inferior." Testing the children then for imagery types showed that in the fourth grade 60 per cent. of the "superior" children belonged to the mixed type, in the fifth grade 70 per cent., and in the sixth grade 100 per cent. On the other hand, Pederson's efforts to correlate imagery type with success in the individual school branches gave little evidence of the existence of such a relationship. Unusual ability in a given line, however, is ordinarily accompanied by more or less one-sidedness of imagery (musicians, painters, etc.).

It might be supposed that differences in the formal qualities of attention could be determined by type of imagery ("fixating" attention resting upon visual imagery, "fluctuating" attention upon auditory imagery, etc.), but the evidence is against this.

In general, we may say, (1) that mental imagery determines the quality rather than the grade of endowment, and (2) that the existence of the near-pure type with subnormal intelligence means that the approach to a pure type is the result, not the cause, of the low intelligence.

(1) For an individual to approximate a pure type of imagery does not necessarily mean that his preferred imagery is more distinct and clear than this same imagery would be with another person in whose mental processes the given kind of imagery plays only a subordinate part.

(2) The relation of mental imagery to the successful activity of individual mental functions deserves further study. The investigations of Cohn, Aal, G. E. Mueller, Muensterberg, and Miss Mabel Fernald, all indicate that differences in observation, memorization (of figures, words, etc.), and retention depend in a measure upon imagery preferences.

Types of feeling imagery should also be investigated. Some remember best the pleasantly toned feelings, others the unpleasantly toned.¹²

¹² This article will be continued in the next number of the Journal.

SPECIAL LINES OF WORK AND RESULTS SOUGHT¹

BY MARY I. DOUGLASS, *Rome, New York.*

The underlying thought or educational precept as conceived by us in our work here is, that through the means of physical and industrial training we may bring our boys and girls to a greater or less degree of usefulness in the home, to a fuller sense of their responsibilities to themselves and to others in this home which the State of New York sees fit to provide for its dependent children. We also aim to prepare any child or children who may be going back into the busy world, so that they may the better take their place among the workers and bread winners. Usually, however, when a child is committed to an institution it is safe to conclude that he has come to stay.

To you who are temporarily sojourning with us, hoping for keener and fuller knowledge of the types as you will or are meeting them here, it is my idea to outline to you quite clearly, our plan of work. By studying the child here and coming in close touch with the methods we have worked out in our years of close contact with the children, you may be better able to cope with the problems as you will meet them in the ungraded classes in the public schools. We do not have, nor will you find them anywhere, any special methods for any special types. We are only working out a theory that starts with the thing as we see it, and work on and into it, blindly if you will but usually striking a vein of gold somewhere; for in the mind of every child is a hidden mine, if you will let me use that simile. The old and much-tried theory, from the known to the unknown, or from the simple to the complex, just working from day to day, doing the thing as presented at the time of presentation and hoping that we are doing right. But we have found certain lines of work to suit one child when it is very eminently unfit for some other child and I dare say that the same thing

¹ Given at the Summer Training School of the Rome State Custodial Asylum, July, 1914.

has come to you in the training of normal children. So in that respect our work is not dissimilar. This puts us on common ground.

Now I will outline to you our course of work as at this time we are carrying it on. I will divide the work into the several different departments which we conduct and at the same time try to show you how each supplements and overlaps the other. When a child is committed to the care of the institution the teacher can almost safely conclude that he or she has come to stay. I think that I am repeating myself here, but it is a comforting thought that your work when once started is not liable to interruptions from outside sources or influences. True, there are exceptions but they are rare. Hence, when we think of this, be they large or small, young or old, bright or dull, it is our duty to make the life that child shall lead as broad, as full, as good and as beneficial to himself and to his companions through him as we possibly can. If a child, because he is dull or slow, is not allowed to do the things he can do, then we are cheating that child. The child who is sometimes even being repressed rather than being taught to express himself, through language or through industrious occupations, we are most emphatically cheating, even defrauding of his natural right. Of course we receive a great many boys and girls who are full grown and have been pretty thoroughly trained in other schools. They are very useful citizens without further specific training in industrial or school classes here, so they are immediately placed in our barns, farms, gardens, shops or sewing rooms, tailoring, shoemaking, housekeeping, or the like, in fact, when they arrive we try immediately to make them feel that they have a corner in our home, a work to do. They may not be the best of help, if they were they would be earning their bread and butter among the others of the world's workers, but when they feel that the man they work for needs them and that they personally are essential to the daily support of the institution their usefulness is increased ten-fold.

Now, with the higher grade children we try not to let their

work grow monotonous. We vary it in different ways. If their work is in the laundry, house or even in the barn or any other place accessible to school hours, we try to arrange music lessons. We have piano pupils by the score, and the progress some of them have made in even a year's time is surprising. Then the various brass and stringed instruments for boys in the band and for boys and girls in the orchestra or glee club are taught. This is different from their regular work and is a great incentive for them to do good work. For in our home talent entertainments throughout the year we always call upon these children to help us and one of the greatest favors we can show them is to ask them to take part in the program. But for boys and girls who come here young and for the most part untrained we conduct our school classes.

Now we may be "juggling" with this word school, but I think not. For all of "life is a school," and every day brings its full quota of lessons. If we see fit to grasp and use them we are being educated to the fullest degree. So whether we are learning to read, to write or to cipher, or are learning to weave, one over, one under, or are learning to walk, to talk, to run or jump, every motion is a step ahead in a lesson. What is school other than a series of these steps or lessons?

A. Our Plan of School Development.

First, physical training for the low-grade child, for the brighter but still untrained child, and for the child that has already had some training. We teach them to walk, to run, to make a circle, to play ball, build blocks, climb stairs, walk the ladder laid horizontally upon the floor, to lie down, to **jump** up, to play horse, jump rope, running races, jumping races, and many other exercises that demand little or no apparatus. These things are for the house and playground. On the latter, however, we use some regular playground apparatus, like the swings, the teeters, rings and merry-go-rounds. In addition to this for outdoor work we have long outdoor walks both summer and winter. Sliding, skating, hockey sticks and balls, or hockey sticks and blocks of wood are splendid for children to use on their long walks. Besides exercising their limbs it rouses their

powers of concentration and coordination. There is not an exercise that demands closer attention or becomes more all-around in its inclusiveness of mental and physical attention and energy, for the ball or block has to be hit squarely and sent ahead, the eye watching for it to land and then the boy must run ahead, catch it up and send it further along, repeating the process over and over, often having to climb up and down, over fences and ditches, sometimes falling and then climbing up to go cheerfully on, and if the child is under the guidance and training of an active, intelligent, energetic and ingenious teacher, manifold exercises and variations of this will be devised and the child can be developed wonderfully.

Now we pass on to the better grade, untrained child who will have used the training outlined for the low-grade child, and will also be capable of receiving a little higher grade of training, like circle games, calisthenics, set drills, dumbbells, wands, hoops and marches, following commands given by the teacher. These exercises may be as strenuous as the child can take, or shaded to suit the case as the teacher sees fit. For the higher grade boys who have some training there are the army maneuvers. Our boys like the rifles and their look of real warfare. In watching a sham battle given by the boys one cannot help noting that the interest manifested is plainly of an intense kind. The attack, repulse, withdrawing and then going at it again at the command of the leader, and the reliance placed in their leader, seemed to be as genuine as one could wish it to be. In calling any one of the boys to you after the exercise and before reaction has set in, you will see the eyes sparkle, the breath come quickly, and I have even heard one remark, "I hit him; did you see him fall?" and then you would see these same two boys, the slayer and the slain, walk away side by side talking the thing over. It is a splendid exhibition of practical physical and moral training.

B. The Subject of Rythm.

When drills are accompanied by music the response to rythm is very marked. With boys and girls of any grade, low, medium or high, the response to rythm is very, very pronounced,

and of great benefit to the children. I have personally conducted exercises in rythm where fifty or more low-grade boys responded to rythm by clapping their hands, keeping perfect time, be it 4:4, 3:4, or any arrangement you might wish to make. Also I have seen them clap loudly when the piano played loudly, and softly when it played softly, thereby emphasizing their appreciation of the differences in sound as well as a demonstration of their rhythmic ability or sense, as you please.

To show you how we try to connect the different kinds of work so that they will supplement and overlap each other as regards their value in training, we place these children in our day-room, or on the playground, and play in group manner. These children are of various grades of intelligence, low, medium and high. Some are playing ball with one who is a leader or a teacher, as we sometimes call him. Another group is tumbling upon mats laid for that purpose. Others are climbing the stepladder, or walking the floor ladder. The teacher may be giving some set exercises, as calisthenics or drills. Or again, he may have placed this work in the hands of a "leader," and he himself may be leading another group into some circle games. All are doing something, the something that they can do well, the teacher encouraging and helping all at almost the same time, his or her influence of course pervading the whole atmosphere. It takes a very lively person to do this. One cannot go into it half-heartedly.

Then, if you watch these groups carefully and closely sometime, you will see a medium or even a low-grade boy observing what his neighbor is doing. Sometimes he will ask the teacher if he may do this or that other thing which before he has not attempted, but more often he goes at it without asking, for here all is common ground and common property. And the teacher, quick to catch the drift of his thoughts, is there to encourage or to let alone as each individual case requires. The teacher must be sensitive to these finer points. For sometimes a child is too timid to be even noticed when he starts at the new things. It is the teacher's business to know these things, these little tendencies, and to direct, encourage or let alone, as the case may be. If

this same boy had been left alone with his class, only playing ball, he would not have seen that other thing which he is now so ready and eager to catch up. I hope you get my argument—group work is absolutely essential in the physical and industrial training or development of feeble-minded children, all through their training, from start to finish.

C. Color and Form.

The next step is a course in color and form and a little sense training. We have not gone into the training of the senses of touch and hearing, bearing in mind the extremely practical side of the question. Here our physical work supplements and overlaps to color and form, for the teacher endeavors to give him something of the old while introducing the new. In training his sense of touch, she encourages him to handle many of the things which he used in his physical work, like his rope, his ball, locate his feet and his hands, then has him show what he has hitherto done with those members, like walking, running, jumping, climbing, etc. The blocks are not entirely new, either, for they built with them in their playroom work, with the exception that there are added forms and new colors. The old as well as the new are given him, and he learns to distinguish the one from the other, the colors through the beads, blocks, pictures, yarn, etc.; the forms through the piling of blocks, triangles, squares, circles, etc., and the many occupational exercises like drawing, sewing, paper cutting, pasting, etc., to reproduce these forms, in pictures for the mind's eye to remember. Then to further their interest and to connect it with the industrial which is to follow, we introduce some very simple hand weaving. Teach them to button and unbutton their clothes through the means of some very simple frames constructed for that purpose, lace and unlace shoes, tie knots of various kinds, braiding, sewing, outlining, etc.

D. Articulation.

Underlying, supplementing, and pervading all training is articulation, which we introduced last September. We have many children who have defective or no speech, thereby hindering them very materially in getting ahead in any work. But thus far the children taught are those who have been most handicapped

in accomplishing things because of this defect. We are taking the work in class periods of half an hour each, with from four to eight pupils in a class, preferably four. The teacher is conducting the work according to the plan or theories used in schools for the deaf. The aim of the work is obvious, the scope tremendous, unlimited. As for the aim, it is that of giving the child the best he can acquire, and he may the more readily acquire industry and mental development of all kinds if language, the physical entrance to the brain, be his to command. Having this to assist him in making himself understood, and not being compelled to lose the best of things because he cannot do so assists very materially in all growth or development.

Each teacher in every department, and every thoughtful and earnest person in the house assists in this work of articulation. If a child asks for a thing he is, or should be, listened to with patience and courtesy, and if he receives assistance in pronouncing words plainly from everybody with whom he comes in contact the work of the teacher has not been in vain. But on the other hand, no matter how strenuously the teacher may work and hold the pupil to his work, unless the child is assisted outside the class, that child loses much. At least his clear and unhampered articulation and enunciation is further and further postponed. So as the children go from articulation lessons to color and form, to physical work or to industrial occupations, the work of the teacher will be greatly augmented if all try to help him to a more perfect speech.

E. Industrial and Manual Training.

In our industrial work for boys and girls we do a great deal of hand weaving. I would like to lay particular stress upon hand-weaving as a means of development. The carpet looms used mechanically are not advisable for any number of children. One or two, perhaps half a dozen children might be developed in this way, but for the greatest good to the greatest number and for lasting good to all concerned, the hand loom is productive of the best results. Then we have brush making, chair caning, shoemaking, raffia, reed and splint basketry (since the summer school we have introduced netting), crocheting, knitting, plain

sewing, outlining and fancy work, embroideries, stenciling, and every available and ingenious way possible of getting at the thought of progressive industrial development in the child. I always like to give as an example for preliminary training, the sewing of the carpet rag. Though it is the simplest and crudest of occupations, it necessitates in accomplishment the most accurate and delicate handling. For instance, when a girl has been taught to cut the rags, to lay them together overlapping each other, end to end, and fold them in a triple fold; sewing through six thicknesses and fasten the final thread before breaking the thread, then this girl and this teacher have both achieved a signal triumph. That pupil will move forward, attack and accomplish something a little more difficult, and so on to higher grades of work. She will, as in the playground or playroom, see that other, better class of work, and soon will ask for sewing, embroidery, knitting and basketry. Our industrial work, as you have observed, is being carried on in the boys' department in separate and detached class rooms. In the female department we are doing it on the wards. There are arguments for and against either one. The teacher can get the best individual results from the special class room plan. There are fewer diversions when the class is separated from the unemployed members of the little family group. Better order and more quiet can be insisted upon. Normal conversation or more nearly normal conversation can be carried on by the teacher and pupils, thereby presenting proper subjects for thought, and the teacher through this means can become more closely associated and understand the different dispositions with which she will come in contact than can be done on a ward, where half or more than half the children are running back and forth. Then samples of work can be kept in evidence and the children will receive inspiration from seeing finished work and therefore be reminded of many occupations which they might like to do. There are arguments in favor of industrial work on wards. The children who are occupied with the industrial work are taught thrift and repose of manner while on a ward; are shown that through occupation they can be as much as their attendants, useful household workers,

and also from the number of unemployed may possibly come unsolicited those who see and would not have seen had the work been done in the special class room. Also the tendency of the attendant to push the child aside and do the thing herself will have been eliminated, for she will see personally that the patient and painstaking efforts on the part of the teacher have developed some child or children who heretofore all were thought incapable of development or of any useful work. It also brings to the attention of the attendant the need for his or her hearty co-operation in the work.

F. Domestic Training.

From industrial work we just naturally step forward into domestic training. In this department we are not scientific. On the other hand we are trying to be intensely practical. Domestic training as a science would not or could not possibly interest or attract these feeble-minded children, idiots, imbeciles or even morons. Booker T. Washington says, in regard to his hobby, "We teach farming, not agriculture; and plain cooking, not domestic science or household arts." Now this appealed to me: plain farming, plain cooking, plain bed making, plain dish washing, plain sewing, etc. Doing all well and with a proper spirit of homemaking is what girls and boys all need, all over the world. To teach a girl in the public schools or in the institutions to make angel food when eggs are from forty to sixty cents a dozen, and to teach her to make expensive candies when her parents are barely able to furnish the necessities for sustaining life as so many of our domestic courses do, is starting wrongly, absolutely wrongly. **Adapt your course to the environment in which you find yourself, using common sense and good judgment, and you will find that good and economic results will follow.**

With our girls we have adopted a new and quite a different system from that followed in ordinary domestic or household courses. During the year just passed we have had no domestic science instructor, but nevertheless have accomplished considerable. Forty to fifty girls have been placed in the department for training and our plan has been to divide our regular work

into five sub-departments, sewing rooms, laundry, kitchen, dining-room and ward work. Then we have placed from eight to ten girls in each department to be trained by the head of such department or by her assistants. After one month's training each class as a class has been passed along to the next department, giving each girl two intervals of one month each in each department, in one school year. As we have found among these girls some twelve or fourteen capable of doing well under guidance the work of each separate department, we have placed these girls permanently in the department to which according to our best judgment they are fitted. There do come, however, times when they grow restless and tired. Then we know they need change and transfer them from one department to another. Through the means of this changing class list we hope to discover or ascertain the work best suited to each individual, or better still, and as an ideal toward which to work, we aim to give each one an all-round household training. The latter is easier said than done, but I think one's ideal cannot be placed too high. We do realize, however, that we are in an experimental era, but while experimenting we are training girls.

G. Primary Musical and Printing Shop Work.

This primary or elementary book work is due solely to sympathies. We are not equipped for day school business. We have among our children a great many young boys and girls from orphanages, and many others who are rather brighter than the ordinary feeble-minded child, and knowing and realizing his limitations, we aim to teach him to read stories understandingly, teach him to read the names of children about him, letters and numbers of buildings and wards, so that he may be helpful in sorting clothes which are delivered from laundry to wards, or are to be placed in clothes rooms for that purpose. We teach them to tell the time of day, the days of the week and the months of the year, holidays and if possible their meaning, why we celebrate the Fourth of July and what Christmas commemorates, inculcate a spirit of giving rather than receiving, of doing for others rather than always have others doing for them. We do not try to do this so much by preaching as by example. Preaching

is certainly to be tabooed. Then we want them to count money, to be able to make change, and if possible to make them realize the value of it, and, in all departments where the child is at all capable, to try to distinguish between right and wrong and then do the right, to tell the truth, tend to business when business is the order, and tend to play when play is the order, to have a real honest regard for the rights of others, and to put the same into practice.

As regards methods I think I told you in a previous talk that we like Montessori, perhaps principally because she gives us a wide range. For a guide in the elementary branches we use the New York State Syllabus, adapting it as the teacher sees fit. So far as I know, in fourteen years' experience, there are no cut and dried theories that will fit the training of an ungraded child. Each teacher will find her way, that is, each real teacher will, and unless you are a real teacher do something else.

I am only going to outline briefly what we are doing and are still trying to do in music. For nine or ten years we have been training boys and girls in band and orchestra and string quartets, vocal ensemble and some solo work and piano lessons, all proving of greater or less benefit to the pupils. This training is not only of benefit to the particular individuals who are receiving lessons but to the boys and girls who are privileged to listen to the lessons as given, and from time to time the entertainments which they gave proves a very valuable incentive; for from the ranks of those who listen come those who aspire and eventually those who perform. Often to our teachers come requests for music lessons on the various instruments, a place in the choir or a part in the play or operetta. We do not devote any large amount of time to dramatics, for it takes too much time from the regular work or general training that we think can be utilized to better advantage. If from the regular training classes we can produce entertainments we are more than glad to do so. But when we interrupt the regular work too much we find the children grow excitable, and in consequence somewhat troublesome. We have a weekly band concert and dance provided by our employees' band and orchestra, and one moving picture show

each week through the fall and winter months which provide the necessary variation from the daily routine work, aside from which two or three home talent entertainments during the year are enough for which to make special preparation. Our entertainments take the form of operettas, minstrel shows, farces, comedies, musicales, masquerades, fancy and military drills and marches, Maypole and other fancy dances, etc. Always in accomplishing these things we are reaching out for new actors and actresses. Not really reaching out, however, after all, for actors are fairly thrust upon us from the ranks who listen and aspire.

In our printing office you have observed a busy bevy of boys. They are learning to set type and to distribute it into their respective compartments, to operate the hand press, which is in use in our shop at the present time. They are really getting hold of the work quite fully and have a fairly comprehensive view of what it means. From an economic standpoint there is a decided gain, for they are doing much of the work that heretofore the paid printer had been in the habit of doing. They are also doing a great deal of work which formerly had been paid for in some publishing house or job printer's establishment, such as clinical records, daily reports, repairs and renewal slips, in fact everything in the way of printed slips which are in use in the house. Our little school paper, "The Rome Custodial Herald," proves a most valuable aid as a training factor. The getting of news items, the mention of a name in the "School Items" column makes Harold feel proud or Margaret do well enough to get her name in print.

Now, to you teachers who aspire to teach these children either in the ungraded class or in the institution, let me say to you as from the heart of one woman to another, you cannot anywhere be given a more valuable opportunity. The subject is a serious one. You have listened to Dr. Bernstein in talks and clinics; you have heard the various sides and phases of the work as it has been presented to you by college men and by organizers and workers in charity; you have heard the teachers' viewpoint as it has been so ably discussed by Miss Jane Shaw; together with

all this comes your opportunity to study the child at close range. I hope you have not let this opportunity slip through your hands, without reaching out and grasping all the good there is in it. Study the children, get their viewpoint and carry away with you one or two or more striking truths which will be helpful in your work elsewhere. I am sure you will find them. Let me help you get a couple of them. When your work gets too trying, your children are un-get-at-able, call to mind the class of little paralytics in our women's group, or the class in color and form where you saw those very, very low-grade little boys. Or when you have been heart-sick over the repeated offenses of a boy or girl and the police have at last decided that something must be done with them, remember our home and use your influence in getting him in here or in some one of the equally good homes throughout the country. Meet and become acquainted with the people who make our laws, and familiarize them with the problem as you have seen it here and have heard it discussed here, start a sort of campaign to inculcate the spirit and start the movement necessary to raise enough money to house the twenty-six thousand feeble-minded who are still running at large in this great State of New York.

And now as to the kind of teacher who endeavors to instruct the feeble-minded children, let me tell you that many people in the past have thought and even said, "anybody can teach the feeble-minded," but as Dr. Herrick intimated to us, the normal child does not need teaching, only guiding; but the backward or feeble-minded child has to be taught. Not everybody can teach them, it requires a very ingenious, original, painstaking and intelligent person to teach the feeble-minded. A teacher must do more than just what he or she is told. She must delve deeper than the surface, her thought must be for her work. It is the original person, the energetic one who does not look to her superior officer for ideas or who does not depend wholly upon the curriculum who succeeds. It is the man or woman who can go into a class room and make much out of little, who can reach out and gather in available material from the most unpromising spots, who gets ahead and makes the work a valuable one.

It is possible to make out a program and then sit down at your desk and call your classes in their order and hear recitations in their order and think that today's lesson or that this session's work is done when the scheduled hours have passed. Instead one has to try and try, and if one method fails try another; keep at it, stick to it and push ahead, sometimes even discovering that you have to go back and begin all over again, always bearing in mind that even though it is a rocky road, you have to travel it with cheerfulness and never-failing courage. For these children were never driven to good work bearing good results by a cross, hard-to-suit, disagreeable teacher.

As mentioned before, the average normal child is ready for knowledge, and whether he or she has a teacher or not will learn something, but the way must be prepared for the ungraded child and he has to be led through many paths, winding and devious ways, before results can be accomplished, but the result when it comes is worth while. Often again we meet with the thoughtless person who says, "But what is the use? They won't amount to anything anyway." True, many of them will not amount to much, but simply from an economic standpoint we are doing right to keep these children busy and interested; the work they accomplish (it may take several to one) will eliminate the employment of one or more persons, thus saving some money in salaries; **then when they are constructive they are not desructive.**

Then, from an ethical standpoint we are surely doing right to lift these children as far out of the mire of idiocy and embecility as possible, to guide them through these means of training to a progressive human development, physical, mental and moral.

We all know they are a hindrance to normal children when in the community, and we all have seen that when taken from the community and placed in the institution that they have found their level and amount to something in their own little way; and in any event we can not all be called to the seats of the chosen few; we must all be little before we are big; we must all be small before we can be great; so they as well as we should be allowed to live and move and have their being in the little corner to

which it has pleased an All Wise Father to place them.

We try never to miss an opportunity of showing these children, not so much by words as by example, the things, the little things, that help to make a good life; everyday acts of kindness and courtesy shown to one another. We try to give them a sense of their responsibility as members of a great family; in fact we are trying to be practical, honest, work-a-day people and are endeavoring to bring our children up to that standard.

A SYSTEM OF TEACHING MUSIC TO MENTALLY DEFICIENT CHILDREN—SOME PRACTICAL HINTS AS TO METHODS¹

BY EDWARD WARMELING, *Rome State Custodial Asylum, Rome,
New York.*

In preparing this address it is not my intention to elaborate in detail the many different methods in teaching the various musical instruments, since each and every one, with few exceptions, has a system entirely its own. The piano, without a doubt the most universal of all instruments, offers many difficulties to the student on account of its harmonic capacity, and grouped reading. The violin offers innumerable difficulties on account of its complex fingering and the different positions and methods of bowing, and so with all instruments. However, I will endeavor to explain some of our methods of instruction which have proven to be practical.

To begin with, it becomes absolutely necessary that the pupils have musical talent along with their knowledge of the A B C's; without that, it is useless to try to teach them. I find, however, that a good majority take kindly to music. In taking a pupil we first determine what instrument he wishes to learn, as not all take kindly to the same instrument. Some desire instruments of the lute class, such as piano, guitar, and mandolin; others the wood wind instrument, such as the flute and clarinet; others the brass instruments, such as cornets, baritones, slide trombones, etc.; some the family of stringed instruments, such as the violin, viola and cello, and still others the percussion instruments.

We seldom start a beginner on the violin. It is better to start him on the mandolin which has the same system of fingering and offers additional advantages of being fretted, making it possible to establish a better relationship between the instru-

¹ Paper given to the Summer Training School students at the Rome State Custodial Asylum, July, 1914.

ment and the music. After we see that he shows ability on this instruments and that he shows evidence of having a true ear we undertake to teach the violin, which of course is more difficult on account of not being fretted and offers, besides, many additional difficulties. On account of its legato and cantabile effects the violin is more desirable.

In teaching the different instruments it becomes necessary to omit technical terms as much as possible and to place the subject before them in a clear and concise manner, using only plain language, and to illustrate and compare the rythmics and tone progressions to more familiar objects, such as the divisions of a foot rule or coinage, as many of them are familiar with the value of its fractions.

In teaching the rudiments of music we first acquaint the pupils with the staff and compare it to a ladder showing the progression of intervals as they ascend and descend on the lines and in the spaces. We omit the added lines temporarily until occasion requires their explanation. I also find it best not to teach the letters of the lines and spaces in the beginning as it tends to confuse them. It is better to reserve that until later on. The next step is the formation of the scale. In the beginning it is well to keep them in ignorance as to the existence of other scales, other than the key of C and treat the diatonic scale in its major mode only. We now proceed to form the scale, placing the two tetrachords in their order showing the existence of the two semi-tones between the third and fourth degrees of each tetrachord, showing how they come in their regular order between the third and fourth and seventh and eighth degrees. We now compare the audible distance of degrees with the visible distance of degrees of a foot rule, indicating the existence of other sounds when the visible half inch would occur, thereby creating the chromatic scale. We also liken the measure in music to the division of an inch, using common time as a basis.

The next step is to show what relation the instrument and its construction has to the music. In this much depends on the pupil and various illustrations are necessary on account of the variety of instruments. After once establishing a relationship

between the instrument and the music the pupil begins to think more or less for himself, and we gradually acquaint him with the different scales and teach him the letters of the different notes, using the alphabet from A to G as a basis; and in addition to this we teach them the different divisions of time and tempo, as well as ornamentations. As to theory and harmony, that is out of the question with this class of pupils, and the best we can do is to teach them to audit on their respective instruments. It is difficult in the beginning to convince them of the necessity of studying exercises, so I find that it is a good policy to teach them little tuneful airs where the intervals are not too great and where the pupils are more or less familiar with the theme, using music of slow tempo at first, and simple airs with increased velocity later. In this way it is possible to develop a certain amount of technique. It gradually dawns upon their mind that gymnastics of the fingers becomes a necessity and will take more kindly to exercises. Most pupils take kindly to "old home" songs, lighter classics and popular music if it be of the tuneful variety. Teachers will find it of great advantage in being able to write music since all pupils are more or less acquainted with airs and songs not always available; and one can simplify and place this in favorable keys, thus enabling the pupil and aiding him or her in producing correct intonation. The greatest desire of a pupil is ensemble playing, and we try to work to that end. This also requires special orchestration and makes rearranging and transposition a necessity.

In teaching the various brass instruments it is necessary to establish an embouchure, since the sound is produced by vibrating the lips against the mouthpiece, and good teeth are also an essential factor. I find a very good method for beginners is to place or stick a small piece of paper or sliver on the tip of the upper lip, as there is a natural inclination to vibrate the lip with the use of the tongue to remove the same. This method of vibration is essential in producing a good tone.

After a pupil has learned to play a theme it is well for the teacher to improvise a counterpointal melody while playing with the pupil since this will add to the harmonic effect and be more

pleasing to the ear, and will also create more independence in the count than if both were playing in unison.

In preparing this address I have not attempted to cover all of the various methods since much depends on the individual and his or her mental capacity. It is not the intention to produce celebrities or professional musicians from this class of students, since that requires from two to four hours daily of study and exercise, covering a period of years by a normal individual. It is intended to give them a pleasant diversion and recreation. It keeps their minds occupied in the effort to memorize pieces and sometimes acts as a panacea for their imaginary troubles and there is no question but that it aids and develops the individual mentally.

Pupils in the institution should be very thankful to Dr. Bernstein inasmuch as he affords them an opportunity to listen to the weekly concerts of the institution band, living as it were in an atmosphere of music. These concerts afford them an opportunity to listen to a good program produced by professional musicians and helps them to cultivate a taste for good music.

As I have already mentioned, not all students take kindly to one instrument. We have many instances where pupils showing ability will make little progress on the piano, but will succeed fairly well on the cornet, and some who will fail on the cornet will do well on the mandolin, and so on, covering the many different instruments, so the teachers best qualified for this line of work are those capable of specializing on two or more instruments, and they should have a theoretical and intimate knowledge of the compass and technique of all instruments in use in the modern band and orchestra.

Before closing I wish to lay special stress on what I consider very essential to success, and that is to make the pupils feel thoroughly at home in your presence by allowing them a little liberty in their whims and fancies, relative to what pieces they wish to play, thus allowing them to use and concentrate their entire thoughts to the task before them, and in conclusion, a little joke now and then, good judgment, plenty of patience and good nature will add materially to your success and make them like their lessons.

DR. WALLIN'S REPLY TO MY REVIEW OF HIS "MENTAL HEALTH OF THE SCHOOL CHILD"

BY F. KUHLMANN, *Faribault, Minnesota.*

In the September, 1914, number of this Journal, I reviewed the book here in question. In the following number Dr. Wallin replies with what he calls an "analysis" of my "attack," and an "exposure to the public scrutiny of what purports to be a scientific review." He regards my review as a whole or different parts of it as "obviously inspired by personal animus," "as literally 'shot full' of blunders and animadversions and villifications," with many of the statements as "not only misleading and irrelevant, but utterly and inexcusably false and irresponsible"; as a "diatribe," as "juggling with the facts," as "tawdry," and "idiotic." The reviewer himself is described as either "woefully careless of his facts or willing deliberately to distort facts in order to misrepresent or malign the writer," as a "pastmaster at fighting men of straw, * * * or of ignoring or perverting facts clearly stated, or presenting his own assumptions as universally accepted facts," as "utterly incapable of writing an accurate, reliable, impartial review," and as calling to mind Karl Pearson's statement that "It is a singular phase of modern science that it steals with a plagiaristic right hand while it stabs with a critical left."

A scientific periodical is not the place to answer these entirely personal slanders and incriminations. I repeat them to show the temperament and state of mind that has produced the "reply," which seems to be directed more against the reviewer than against the review. Aside from this, it is a strange piece of literature, if, indeed, it is entitled to the courtesy of calling it literature. While, on the one hand, he seems to have searched the English language through for terms with which to accuse, without the least sign of an effort or intention to stick to the facts, he on the other hand commits all the crimes against science and common decency that his imagination has been able to con-

jure up. There is not a paragraph in the reply that is not saturated with statements either absolutely untrue, or misconstructions of the review, or entirely beside the points in question. The occasion does not merit the attempt to answer Dr. Wallin in full. My reply is to show, in part, how much more severe the review might have been on the author of the book than it was, and still be entirely justified. He speaks of a duty to "expose" the review. Had I had any desire to see the author of "Mental Health" exposed, I could have wished for nothing better than the publication of his reply.

1. The general charge is made that the review is "inspired by personal animus." The review is admittedly and intentionally severe; perhaps, also, it shows some animus. But that this animus is personal, and not aroused by the shortcomings of his work, I alone am in a position to say. There were no grounds for any such personal feelings. Yet, Dr. Wallin finds such grounds, for note his strange explanation that the animus is due to his failure to cite my discussions on the Binet scale, which **at the time of his writing, as he says, were not yet in circulation!** It would be interesting, further, to know under what circumstances Dr. Wallin regards an "animus" as legitimate. For evidently, it seems to him entirely proper and in place when he makes a reply to an unfavorable review of his work.

2. My review states that "The Author's failure to consider the literature previously published, and the copious advice, suggestions and plans given leave the impression of the unscholarly and amateurish." Of this he explains the absence of references to literature. This, is first, because "the chapters which lack bibliographies are, almost without exception, reprints of public addresses." If this statement were literally correct, it would not alone be sufficient excuse for not appending lists of references when the same material comes to be published in book form. Readers of a book are not an audience for a lecturer. But the statement is not correct. Twelve, only, of the sixteen chapters without lists of references to literature are indicated as addresses. Seven of these twelve have been altered on reprinting, in book form, leaving only five addresses unaltered. If his own state-

ments needed revision to adapt them to book form, why could bibliographies not be added for the same purpose? Did the author regard these revisions of more importance than relating his findings to those of others?

3. A list of references to Chapter VIII on "The Present Status of the Binet-Simon Graded Tests of Intelligence" was omitted because, he says, this was frankly only a summary of a larger work he had at the time not yet printed, and such a summary he regards as entirely legitimate. My review makes no statement so absurd as to deny the legitimacy of such a summary in itself. It denies the right of the author to label such a summary the "Present Status" of the Binet-Simon tests.

4. Several hundred publications were not consulted for Chapter VIII, he says, because not that many existed at the time of the original address, October, 1911, and reference was made to the "parallel findings of a few investigators whose publications were available at the time of writing." The first of these two statements is beside the point. The question is not what was available then, but what was available at the time of the publication of the book. The chapter as it stands does not indicate the "Present Status" of the tests in 1914. It should either have been revised or omitted. Its historic value is small. The second statement is incorrect if he means by "available at the time of writing" all that had been published at the time of his writing. Five other publications only are referred to in the chapter. If this was all that was available to the writer at the time, he should not have attempted to say anything at all on the subject.

5. It is charged that my statement that he judged the Binet-Simon tests from the results of his examining 333 epileptics is "without foundation," because, first, available confirmatory results are cited, and, second, because unpublished results and his general experience with the tests confirm his conclusions. This still has reference to Chapter VIII. The only available confirmatory results cited are those of Katherine Johnston, and Goddard (included in the five already mentioned, which all taken together he regards as "more or less unsatisfactory for various

reasons") and refer only to one of his conclusions, namely, that the tests for the ages of six to nine are "entirely too difficult." But citing these confirmatory results does not prove that the tests are not judged from the results of examining 333 epileptics. On page 201 we read: "What now do the results of the surveys made by various workers indicate with respect to the correctness of the Binet-Simon scale? The space at our disposal makes it necessary to limit the discussion to a very brief recapitulation of a more extended monographic treatment." (A foot-note here refers the reader to the study of epileptics). On page 203 we have: "When the results (referring to the results with the epileptics) are critically examined it is found, as a matter of fact, that there is an amazing lack of uniformity between the different tests of the same age. The extent of this inequality may be expressed in quantitative terms by the average mean variations between the percentages of successes for all tests of the same age. No mean variations have been completed except for a colony of epileptics." Again on the same page: "Similarly the differences between the easiest and the most difficult tests in the same ages, based on the performances of epileptics who classify in the given ages, amount to as much as 2 per cent. in age six, 57 per cent. in age twelve * * * *. It is thus evident that most of the age-norms contain tests varying conspicuously in difficulty." On page 206 we are told that: "The strongest indictment of the scale furnished by these curves (epileptic results) is supplied by the mean variations." On page 197 he tells us that the method of using the tests, as followed by others, is defective, as shown by his experience in "testing a colony of epileptics" and "certain types of insane patients." For all these instances no other confirmatory results are cited. Yet, Dr. Wallin is able to say that my statement that he judged the tests from his results of examining 333 epileptics "is without foundation."

6. The chapter in question makes no reference to unpublished results of his own, or any of his general experience with the tests that confirm his conclusions drawn from results with epileptics. Moreover the chapter was an address given in De-

cember, 1911. The tests were published in 1908, and his first serious work with them, so far as appears from his publications, was done with the epileptics begun in the fall of 1910. One is therefore somewhat puzzled to find his statement: "Moreover, it is not amiss to say that years of almost daily use of the scale for the purpose of practical diagnosis with a great variety of cases in university and public school clinics, entitles the user to the right to express a professional opinion." This experience seems all to have been gained during the period from the fall of 1910 to December, 1911, eight months of which was given to the study of the epileptics.

7. To my statement that Dr. Wallin could not himself qualify as an expert according to his own definition, he replies: "I am not aware that I have ever posed as a paragon of clinical skill." My review does not make this charge, directly or by implication, though one would have been entirely justified in charging that the book throughout implies that the author has outclassed most if not all his colleagues as an expert in clinical psychology. In the very paragraph in which the present statement is made he enumerates a long list of different lines in which he claims to have undergone training to fit himself for work in clinical psychology, which everyone who has followed the author's activities knows could not for the most part have been extensive or thorough enough to merit mentioning.

8. My review states that the schema for clinical study similar to the one Dr. Wallin presents "have never proven of great value in practical work," and he replies that I do not prove my statement and oppose my private opinion to the "well-nigh universal practice by the ablest examiners in the leading hospitals and medical schools of the country." I reply first that the sentence following the one he quotes from my review gives my reason for my "private opinion." This notes that: "If the author had * * * shown us definitely how the clinical data called for in his schema could be gathered and utilized in making a mental diagnosis some contribution would have been made." It is one thing to outline pages of questions and topics to be inquired into concerning a child's past history, but to gather reliable data

on these is quite a different matter. Even if we could obtain this data, we have as yet no exact knowledge of the relation between the grade of intelligence of a child at a given time, on the one hand, and these supposed developmental factors in his past history, on the other hand. These clinical schema appear to be very useful to the person who through long experience has acquired a skill in gathering such data and in evaluating it. But as a method they are of little practical use because mental diagnosis with them is dependent on this experience and skill of the person using them. They are not on the same basis with mental tests, the use of which requires, relatively, only a very small fraction of such skill. It is not the schema, which is only a program for investigation, and not a method at all, but the skill that is the essential thing. Second, there is nothing in this that contradicts the practice of medical men. I am not aware that the "ablest clinical examiners" lay more stress on these clinical schema than they do on the experience and skill required in their use, nor that these medical men claim that they are especially able to diagnose grade of intelligence because of their medical training, alone and as such.

9. The review states that: "The epileptic has a special type of mind which causes exceedingly irregular results in Binet-Simon testing. Apparently the author has not discovered this fact, or regards it as irrelevant."

a. Dr. Wallin claims that this peculiarity about the epileptics is his own discovery and accuses me of appropriating it as mine. To prove the former he quotes from his book: "We are able to frame a picture of an interesting spectacle; a case of mental wreckage, whereby the integrity of various mental functions has been impaired in various levels of mental development; and whereby the lower psychic levels have been swept away while the higher levels remain intact." My statement implies nothing as to its original discovery. It also makes no reference to the peculiarity he describes in his further quotation to prove his own original discovery, which is a purely speculative leap of his own imagination, and for which his study reveals no evidence. My statement refers to the fact that an

epileptic will so frequently fail in one or several lower age tests, and then pass in many much higher tests. To explain this, if this is what he tries to explain, by assuming that lower "psychic levels" have disappeared while higher ones have not is entirely gratuitous.

b. His attempt to corroborate his findings with the epileptics with the results of others, and his refraining from revising the tests he points out as proof that he did not regard the epileptic peculiarity as irrelevant in discussing the accuracy of the tests. We have already noted how extensive his efforts have been to corroborate his results with those of others. As to his refraining from revising the tests because he does not regard his results with the epileptics as reliable for this purpose, he does not explain why they should still be quite reliable for the purpose of drawing a large number of conclusions as to various inaccuracies and defects.

10. I am accused of "juggling with facts" when I quote his conclusion that "The typical epileptic category is that of the condition of moronity, * * * while the typical feeble-minded station is that of imbecility" (p. 186). He now explains that this conclusion had reference only to the inmates of the two institutions in question, and that "generalizing the statement and applying it to the whole group of institutional and non-institutional epileptics and feeble-minded" was unwarranted. If this is what he meant at the time it would have been well to have said so in the beginning. As the text stands it gives no indication, by direct statement or by implication, that this generalization is not exactly what he intended. My statement "That the epileptics sent to an institution might be selected cases in any serious degree he does not think likely," is branded as positively false," because, as he quotes to prove, he did point out the **possibility** of their being selected cases. My review contains nothing to deny that he considered possible selective factors; it states his final opinion. Moreover, had he continued the quotation from his book another sentence he would have exposed his own sham argument in his reply. For, after discussing possible selective factors, we read: "We shall not be able

definitely to settle this point until other institutions have undertaken similar studies on a large scale. But three general conclusions seem assured; first, that the great mass of epileptics fall below the feeble-minded line; second that they do not fall below this line to such an extent as the class of amented feeble-minded; and third, that the curve of distribution is markedly different for the two classes" (p. 189). Could he draw these conclusions if he did not think that it was not likely that epileptics sent to an institution might be selected cases in any serious degree?

II. Dr. Wallin has much to say in criticism of my revision of the Binet-Simon tests, most of which is foreign to anything stated in my review. It is not necessary to reply in defense of my revision. Unfortunately for Dr. Wallin's opinion, its very favorable reception during the three years since its publication does not harmonize well with his present belated utterances. I shall answer in continuation of exposing his methods. Perhaps, since he objects to my review as unscientific and not impartial, we are to take this as a sample of what he regards as a model review.

a. He says: "First, I have contended that the revision or establishment of a scale of intelligence for normal children must be based on the testing of normal children * * *. Kuhlmann has produced a revision for normal children which is based on the testing of feeble-minded children, at least so far as concerns his own distinctive experimental contribution to the revision, with the negligible exception of 'forty normal adults' who were given only two higher-age tests, only one of which is a Binet test." His contention, merely, that no revision of tests for normal children can be legitimately made except on the basis of results with normal children is not in itself convincing. My method of using results with feeble-minded in making changes in the tests is clearly and fully stated in my revision and other articles that the revision refers to. Had he pointed out defects in this method, not taken into account by myself, his criticism on this point might have been worthy of attention. His present "contention" carries little weight.

b. He says further: "He eliminated eleven tests from the 1908 scale, added nine new ones and shifted six, but he neglected to state that only a 'few' (sic) of these changes were based on his work on the feeble-minded." This is a most remarkable statement, coming from one who accuses others of wilfully misconstruing. On pages 4 and 5 of my revision we read the following: "2. Shifting of Tests to Other Age-Groups. * * * In making these changes all available data were taken into account to place them accurately. (References to literature include 38 articles). For the age groups III to XII, inclusive, only three tests were shifted. * * * In accordance with the findings of others all the tests of Group XIII were shifted forward." In several tests "the procedure was changed slightly to make them more equally difficult with others in their group. This was done on the basis of my results with the feeble-minded alone." "3. Elimination of Poor Tests. * * * In general, the tests dropped are those most likely to be influenced by the variable factor of training." (Reference to the literature cited here shows that of the eleven tests eliminated only one was dropped because of results with the feeble-minded alone). "4. Reduction of Five Tests for Each Age-Group and Addition of New Tests. * * * Of these (the new tests added) IV 5 and X 1 only are entirely new. V 5, X3, XII 5, and XV 4 are taken from the authors' 1911 revision. XV 5 is borrowed from Goddard. X 5 and XI 1 are modifications of tests that have been used by different authors. The norms given for the last two are based on my results of their use on forty normal adults and fifty feeble-minded of a mental age corresponding to the age group in which the tests are found. The norm for IV 5 is based on the results of about a hundred feeble-minded with mental ages ranging from three to five. This test has given exceptionally uniform results characteristic of this mental age."

c. The last statement quoted above from Dr. Wallin continues as follows: "Nor does he state in respect to the detailed directions for giving the tests which he supplies and which, so far as he has altered the procedure of others must be based on his work on the feeble-minded, or otherwise spun from the 'in-

ner web of consciousness.'” Binet and Simon in a great many instances fail to give specific directions on how to proceed in giving a test and how to interpret responses obtained. Every examiner must supply these for himself. I have supplied them, after personally examining over 1300 feeble-minded children, and after considering the literature on the tests bearing on this matter. In the *Psychological Clinic* for December, 1911, Dr. Wallin published “A Practical Guide for the Administration of the Binet-Simon Scale for Measuring Intelligence,” in which he profusely adds and alters directions for giving the tests and interpreting responses, not found in the original, or based on any results of his own in examining normals. In this he specifically states: “The attempt has been made to outline the procedure which I have found most satisfactory” (p. 218). Does Dr. Wallin object to my standardization of the tests because it is based on the examination of 1300 feeble-minded instead of 333 epileptics, or because it is “spun from my inner web of consciousness” instead of from his own?

d. He objects to my tests for the ages of three months, six months and one year, because the norms for them are based on “recorded observations in literature,” and because “not a single child has been tested in these ages.” This is a good illustration of his apparently deep-rooted aversion to accepting other people’s observations, manifested throughout his book. My revision cites the literature in which these observations are given. They are the observations of Preyer, Moore, Shinn, Major, G. V. N. Dearborn, and many others these authors cite. Dr. Wallin does not deny the reliability of these observations, or that my tests follow these observations accurately. It is simply because I have not myself added my own verification, and because, as I stated, “the norms for them are necessarily based on a small number of cases in a number of instances.” But evidently I should not have said “small number,” since he regards twenty-seven as a quite adequate number in his own study on the effects of mouth hygiene treatment.

e. Again, it is charged that my lower age tests “are appropriated and used by a large number of uncritical Binet test-

ers, * * * who have assumed, and with justice, that the accuracy of the placement of the tests has been demonstrated." In this I seem to be held responsible for the "uncritical Binet tester" using the tests, for which there might be some justification if I had advocated that no special qualifications are required in their use. But had Dr. Wallin cared to do so, he might have read on pages 8, 9, and 10 of my revision my statements on the "Qualifications of the Examiner," in which occurs the following: "The failure of the general public, of the school authorities and medical profession in particular, to appreciate these requirements (referring to qualifications of the examiner) is at present leading to an extensive misuse of the tests, which must necessarily tend to the result of depriving the tests of the general recognition of their merits and the public of the benefits of their use." On my claims as to the accuracy of these lower age tests, he might have read as follows: "The institutions for the feeble-minded are as a matter of fact constantly being called upon to pass on the mentality of children less than three years old. They are doing so at present with inadequate methods. In an effort to meet this need I have added tests for three months old children, six months, one year, and two years." Then, after discussing the possible merits of these tests, I conclude: "We believe, however, that on the whole these added tests will do about as well as the others in the scale because they attempt to measure larger rather than smaller steps in mental progress of the child. Yet, under the circumstances, they must be offered tentatively at present" (pp. 6 to 7). Finally, he resorts, as he repeatedly does in his reply and elsewhere, to the claim of possessing unpublished facts that prove his point, in this case that his own experience with these tests has shown them to be inaccurate, and states that an organizer of baby clinics has found them impractical, without naming the person. Under the circumstances I do not feel compelled to accept his word for established fact. In the same manner, I might reply that my experience of several years with these tests in examining feeble-minded, in using them in baby clinics and elsewhere emphatically con-

tradicts what he states his to be, and proves more than what I claimed for them in my revision.

12. In contradiction to a statement of the review, he claims to know of "several leading oral hygienists" who do expect a large improvement in intellectual efficiency in the course of several months following dental treatment. He is quick to take advantage of the form of my statement, "no one expects," instead of taking its obvious meaning, "no one reasonably qualified to judge expects." Elsewhere we have the repeated contention that it takes the qualifications of an expert clinical psychologist to make a reliable mental diagnosis. Here, when he needs their support, the "oral hygienists" merely, seem to be qualified to judge the amount of mental improvement in question.

13. The review objected to his using tests without norms in diagnosing mental improvement after dental treatment, and he replies that: "We do not determine whether a set of tests measure 'intellectual efficiency' by consulting 'norms,' but by examining the character of the tests which are employed. What the tests measure can only be determined by a critical examination of the tests themselves." Dr. Wallin here lays claim to remarkable powers, in face of the fact that the whole subject of mental tests in psychology is full of disputes and doubts as to in what relation and degrees the different mental functions are involved in given mental tests. If one can choose tests so easily for diagnosing changes in "intellectual efficiency" by merely "examining their character," why did not Binet and Simon and scores of others follow the same method in devising intelligence tests? But this point was not the main criticism made by the review. Granted that the tests he used do measure "intellectual efficiency," this does not do away with the need for norms. Suppose that in his "A-test," for example, the 27 children showed ten per cent. improvement six months after dental treatment. What conclusion can we draw as to the effect of dental treatment, when we have no results on what amount of improvement would have been made by normal children, or by these 27 children without dental treatment? Obviously none, which doubt-

less explains why Dr. Wallin attempts to hide the main issue by trying to defend a relatively unimportant point.

14. The review pointed out that he used only five tests to determine improvement in "intellectual efficiency," while he in another place stated that the Binet-Simon tests should be increased to ten for each age group to make them more reliable. He replies that he did not advocate this increase to ten tests to make them more reliable "as individual tests," but in order to afford a comprehensive survey of different functions for an accurate clinical picture." Let it be granted that the reliability of an individual test in itself and alone is not affected by giving additional tests; also, that the review does not accuse anyone of such absurdity.

15. The second part of his statement in reply fails equally to meet the criticism. "Intellectual efficiency" is a complex of different mental functions as well as what the Binet-Simon tests are designed to measure, and should for the same reason require a larger number of tests "in order to afford a comprehensive survey of different mental functions."

16. My statement that he has regarded group tests, which he used on the 27 children in question, as unreliable while yet he uses them is branded as an "inexcusable perversion of the facts in the case," and to prove this he quotes other statements at great length which he also made about group tests. Again, if he had merely continued one of his own quotations through the next three sentences he would again have condemned himself with his own words. We read on page 221, "First—group tests require written responses. But the clinical psychologist must reduce written responses to a merely nominal amount, partly because children differ in the rate of skill in writing without evincing a corresponding difference in intelligence; partly because many abnormal children suffer from special motor defects of the hand, so that they cannot do themselves justice in the graphic tests." Can there be any question about the meaning here?

17. I misquote him, he says, in stating that he holds that for the results of any test to be reliable it must be given by a

trained psychologist, because he stated explicitly that "psychological amateurs * * * may be competent to administer formal psychological tests." He omits the remainder of this sentence, which reads, "provided they have been sufficiently trained." He accepts mental tests as the chief factor in methods of making a diagnosis as to intelligence, and a large part of the book is essentially a harangue against the reliability of the "amateur" diagnosis. On page 142 we have: "All that can be expected from the Binet testing by persons who are not expert psychological examiners is usually merely an independent confirmation of the pedagogical rating assigned the child in the schools," and "It is doubtful whether the Binet tests will afford an **amateur** (black-face his) in clinical psychology deeper insight into the operations of the child's mind than the pedagogical tests afford to the observant teacher." On page 132: "The proper handling of these cases, whether for the purpose of examination, recommendation or prescription, can only be done by a **psycho-educational specialist**." On page 113: "The more difficult tests * * * should invariably be made by the expert clinical psychologist."

18. The review's statement that "These tests were given by the author or by proxy, and he does not tell us anything further about the proxy" brings the absurd reply that by implication I object to his using a proxy, instead of to his not stating the qualifications of the proxy to conduct mental tests.

19. The statement that he does not tell us anything further about the proxy is regarded as "groundless" because, he says, such further statements were made in the original publication. This reason given admits all that the review stated or implied.

20. The review charges that "The statement as to the time interval between dental treatment and the giving of the several series of mental tests is very indefinite," to which Dr. Wallin replies: "If the reader desires conclusive evidence that the reviewer is utterly incapable of writing an accurate, reliable, impartial review, let him consult page 277, where the precise date of every sitting is given." I, too, desire that the reader carefully follow both my criticism and his reply, here as else-

where. His reply here is one of many good illustrations throughout of how adept Dr. Wallin is in trying to hide his own faults by attributing them bodily to the reviewer, regardless of any shred of evidence.

a. First, in his reply here "sitting" presumably refers to sittings for the mental tests, for he nowhere in the chapter gives any dates for sittings for dental treatment. "Accuracy" might have called for his saying so.

b. Second, the giving of precise dates for the different sittings for the mental tests the review does not deny. This information alone is of little value, when equally precise dates are not given for the dental treatment.

c. Third, page 277 to which he refers the readers for precise dates has not a word about these dates.

d. Fourth, to repeat my original criticism, his several statements as to dates for dental treatment, etc., and mental tests make it absolutely impossible to determine just what intervals he had between treatment on the one hand and mental tests on the other. On page 276 we are told that the dental treatment was given "during the first few months of the experimental year," which was from May, 1910, to May, 1911. On page 279 we learn that mental tests of series 1 and 2 were given before dental treatment; that "the last four tests (3 to 6) were given during the course of treatment, or after its close"; that "the last two tests were given from three to five months after the dental treatment had been completed for all the pupils, while tests 3 and 4 were given only one or two months after the beginning of the treatment for more than half the pupils." On page 287 he incidentally, and in another connection, gives the exact dates of the six sittings for the six series of mental tests. This is all the chapter says about dates. It seems to represent Dr. Wallin's idea of "accuracy" of statement. To verify the justification of my criticism, let the reader try to figure out from the text just what the time intervals were between dental treatment and mental tests.

21. Dr. Wallin claims that he has mentioned other disturbing factors that might invalidate conclusions to be drawn

from his dental treatment study. The review does not deny this; it criticizes him for drawing the conclusions he did under the circumstances. It is not enough to point out faults in one's own experiments; one should show some evidence that these faults have been considered in the final conclusions drawn.

22. He replies that he did not base his conclusions "wholly upon the results of the psychological tests." "Some of the supporting evidence consisted of clinical studies made by duly qualified dentists and physicians. The reviewer evidently does not even know of the existence of such data." I reply that the reader would not suspect the "existence of such data" from any statement in his chapter, for no mention of such is made. Again, if he has based his conclusions partly on such data it is in contradiction to his frequently and emphatically expressed opinion that dentists and physicians are not qualified to judge the question involved.

23. Further, he says: "I do not know that my critic has ever made any contributions to the science of oral hygiene which gives him a special insight into the physical and mental effects of mouth sanitation and thorough mastication." The compliment may be returned. His own study on the subject is hardly adequate, either in quantity or quality, to justify the claim to any "special insight." But the justification of my criticizing him on this subject without "special insight" depends on the nature of the points criticized. Are they peculiar to this particular subject, or are they points involving matters common to most any psychological experiment?

24. Again, he has shown no scruples in disregarding his own advice here. In a recent number of the *Psychological Clinic* he seems to have the "special insight" required for criticizing not only the methods and results of field workers but also in interpreting hereditary data. Here he notes that: "Many hereditary charts are based on the sheerest guess work, on data gathered by persons quite lacking in scientific discrimination and quite unskilled in the art of hereditary, psychological, or medical diagnosis. It is one thing to send out field workers, usually teachers, nurses, and social workers who are novices in

the methodology of scientific research, to interview parents, relatives, friends, enemies, clergymen, physicians, and court officers with regard to the mental condition of the contemporary or ancestral relatives of the cases under investigation; and then on the basis of the field-workers' reports, have someone else who has probably never seen or examined a single relative, construct awe-inspiring heredity charts, definitely and most minutely labeled and evaluated. But it is quite a different matter to assume that because certain symbols have been stamped on a piece of cloth, the correctness of the markings or the accuracy of the hearsay or snapshot estimations and diagnoses has thereby been conclusively established." (See *The Psychological Clinic*, 1914, p. 3). This he labels the "prevailing methods of gathering hereditary data." But this is not all. He not only reveals this remarkable insight into the qualifications and methods of the majority of our present field workers, and knows that they are entirely incompetent to gather the data, and that they do make the diagnoses as to mentality of individuals, causes, etc., instead of merely gathering the facts from which such diagnoses might be made; he has also the technical knowledge required to interpret such data and call to account the highest American authorities whose specialty is the study of heredity by these methods. "I shall in no way concern myself," he says, "with pointing out the confusing, blundering, slipshod, inaccurate, unscientific ways in which many—fortunately not all—of the published hereditary charts have been worked up and interpreted." And yet, what reader knows of any field work or study in heredity that Dr. Wallin has done to entitle him to the claim of any "special insight?" My review of the "*Mental Health*" noted that the book gave the impression of the amateurish; the present quotation is more; it is sophomoric, which applies equally well to much of his book.

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NEWS AND NOTES

The following interesting note is communicated by Dr. James C. Carson, of Syracuse, New **York**.

A year or two before the death of the second Mrs. Wilbur, she related to me the following interesting account of the accidental first meeting of Dr. Seguin and Dr. Wilbur, in the railway station at Albany, N. Y.

It will be recalled that Dr. Seguin emigrated from Paris, France, to this country in 1848. In 1851 he went to Cleveland, Ohio, and there began the practice of medicine. Not being satisfied with the work nor his success at it, in 1854 he decided to return to New York City. On his way there, for some reason, he stopped off at Albany, and took a seat in the station to wait for a train to New York. On the same day Dr. Wilbur happened to be in Albany on business, and also went into the station to await a train for Syracuse, and incidentally took a seat by the side of Dr. Seguin. They naturally fell into conversation with one another and were soon surprised to

learn each other's identity. Dr. Wilbur at once invited Dr. Seguin to visit the Syracuse Institution. He promptly accepted the invitation and, for several years after, spent much time there, voluntarily entering the school-rooms and with great enthusiasm energetically occupied himself at the work in which his heart was most deeply interested, "The Physiological Method of the Training and Education of the Feeble-Minded." From that accidental meeting in the station at Albany, a mutual friendship between the two began, which in following years ripened and continued in the most cordial and affectionate manner, until Dr. Seguin's death in 1880.



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CONTENTS

Recent Progress in Dealing with Feeble-Minded and Mentally Defective Dependent Children.—By Max G. Schlapp, M. D., New York City.....	175
Review of Meumann on Tests of Endowment.—By Lewis M. Terman, Stanford University.....	187
Mental Tests for Feeble-Minded: A New Series.—By S. D. Porteus, Superintendent of Special Schools, Melbourne, Australia.....	200
What Constitutes Feeble-Mindedness?—By F. Kuhlmann, Faribault, Minn.....	214
Editorial.....	237

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RECENT PROGRESS IN DEALING WITH FEEBLE-MINDED AND MENTALLY DEFECTIVE DEPENDENT CHILDREN¹

BY MAX G. SCHLAPP, M. D., *New York City.*

Mr. Chairman, Ladies and Gentlemen: Before reading the paper that I shall present here this morning, I feel it necessary to make clear a few points on which the paper touches only slightly.

The problem of the feeble-minded has been much neglected in the past twenty-five years. Only recently has public interest been much aroused and it is my belief that for this recent awakening we have to thank the pedagogue and the psychologist more than the doctors. The medical man has been especially derelict in this matter, perhaps because he has felt that feeble-mindedness is a hopeless problem and yet there are a few medical men who are particularly interested in this subject and who are beginning to realize that this problem is not so hopeless after all. Of course, we know that where an individual has a brain that has not developed normally anatomically, he is permanently and hopelessly feeble-minded; also in such cases as in meningitis or encephalitis where an inflammatory process or other destructive process has seriously injured the brain the condition is also hopeless. However, there are other types of mental deficiency, which up to only a few years ago, were not recognized as a special condition. I refer to that condition

¹Given at the State Charities Conference, Utica, N. Y., 1915.

where, as far as we know, anatomical construction of the brain seems to be normal, but for some reason the normal cells that are present are not able normally to react to their environment. Why is this?

In order that a cell respond normally to an external stimulation, it must be supplied with the necessary chemical substances that keep the protoplasm of that cell in a normal condition. In other words, the threshold of functional activity of the living normal cell in the living person is more or less constant. The things that keep that living cell in such a constant state of activity are chemical substances supplied in definite proportions. Let me give you an example. If for some reason or other in the adult person the thyroid gland is injured by an inflammation, as in thyroiditis, or has been removed, the thyroid extract will be diminished. If it is sufficiently diminished as to interfere with the normal function of the nerve cells the threshold of functional activity will be raised to the point where an ordinary stimulus will scarcely bring about a reaction and a condition will be brought about known as myxoedema. Where such a state occurs in the infant or in the foetus, it is called cretinism. The cretin is not just the same as an adult case of myxoedema, because the thyroid extract, necessary to a normal development through the period of growth, is not supplied with a normal amount. If such a cretin, having his thyroid extract diminished at the time of birth, is not recognized until he is ten, twelve or fifteen years of age, is it then possible to bring the person back to the normal by supplying thyroid extract in proper amounts? Surely not, because he has advanced through a period of growth that can never be gone over again and has suffered from a loss that can never be made up. Thus he becomes a permanent mental defective. If, however, he had been taken in time, immediately after birth, and supplied the normal amount of thyroid extract during his period of growth, that condition might have been cured. I mention this fact to show that we must attack this problem of feeble-

minedness in a different way than we have been doing in the past.

It is not a question only of examining an individual with the Binet test to know whether he is mentally retarded. We want to know why such retardation exists, what is the cause, can we remove that cause or is that condition truly hopeless? It was not so long ago that we were baffled by cretinism and considered it a hopeless condition. Only recently did we really determine what cretinism is. Today, we are beginning to see other states of so-called hopeless feeble-minded conditions, which are due to the internal secretions which in my belief can be cured if we can determine the exact internal secretion that is lacking. Recently, there have been discovered certain types of infantilism, which are due to a disturbance of the pituitary glands. There are other types of mental defect due to the disturbance of chemical substances in the body, and it is the duty of the medical profession to find out what the conditions are underlying these mental conditions. Is any one helping the medical profession in this? Is the State assisting? If the question is up to the State, we get for an answer, "It is not the duty of the State to carry on research work." Can this research work be carried on under any other auspices? The State has these mentally deficient individuals in its custody and we must study these individuals as our material for research work. The State must provide us the material and the means with which to carry out our study.

There is another matter of which I should like to speak before taking up my paper. I say this not in the sense of any criticism of any who are interested because I know that we are all sincere in our efforts, but I believe that there is a certain class of investigators who are carried away with the idea that to recognize feeble-mindedness is a very simple matter. I believe, in fact I know, that there are a number of workers who think that by giving the Binet test and determining that an individual falls two years or so below the normal standards, an accurate diagnosis of feeble-mindedness is attained. I should like very earnestly to warn against such procedure. We have

coming to the Clearing House in the city case after case that has been thought defective and that has been sent to us for a more thorough examination. Let me cite an example. About a year ago, a boy then about thirteen or fourteen years of age, came to the Clearing House. He was considered not only feeble-minded, but also incorrigible and had been treated accordingly. The mother related that up to his eleventh year he had been regularly promoted in the public school and seemed to be a perfectly normal well-behaved boy. About that time, a change occurred. He became very nervous, irritable and incorrigible and complained of constant headache. Upon questioning, we found that he was restless, did not sleep well and suffered from a very offensive and continuous catarrhal condition. We examined him carefully and found him to be of an intensely unstable temperament, and suffering from an abscess of the frontal sinuses. He was operated upon, and the pus and the necrotic bone removed. The last report I have of that boy is that he is adjusting himself in a perfectly normal manner, to his environment. This instance goes to show that we may have constant peripheral irritations existing in the body which in time will affect the nervous system, so that the individual becomes intensely unstable mentally and is not able to adjust himself properly and normally to his environment. Thus they may often become retarded in their school work because they can not concentrate their mind to the problems put before them. Such retardation may be so marked as to be thought defective.

We also have cases of neurotic children, who at the age of adolescence become intensely nervous. **This neurotic condition** may become so markedly exaggerated as to induce an intense, mental instability resulting in an incapacity for adjustment to environment. If such a neurotic highly sensitive child is exposed to temptations in this period of adolescence, he might easily develop into a criminal or immoral person. The Binet test does not show these conditions lying behind the mental retardation in such situations, and a mental retardation of itself does not mean that a person is mentally defective. Therefore, I hold it extremely important that we are careful how the Binet

test is used and by whom the judgments based on such a test are made.²

The State is now confronted by a problem which always has existed but which hitherto has not been sufficiently recognized. Growing knowledge constantly reveals new relationships, and each revelation of a new relationship amounts to the revelation of a new problem, thus, apparently, greatly complicating the general situation; but, as a matter of fact, this should tend toward the simplification of the whole matter, for each division of a problem into smaller bits permits centralization of minds upon each bit, with the usual result that each is in time conquered.

Thus when the problem of the mentally unfit was divided into two problems—that of the insane and that of the feeble-minded—it really was simplified thereby, for effort at solution was specified, each phase finding its devotees. And even as the problem of the mentally unfit has divided into two, that of the insane and that of the feeble-minded, and thereby was simplified, so the problem of the feeble-minded is now being divided by specialization into various vital questions.

The attention of the scientific world in general is bearing with new appreciation upon a study of the importance of this question to the entire country, through its relationship to education, to morals, to crime, and thus to the future of the race.

Through this division of the problem, a difficulty which, if unsurmounted, might threaten the whole structure of progress, seems likely to arise, and it is of this that I wish to speak especially. I am convinced that it is the bounden duty of those of us who are particularly interested, to see to it that this threat has no occasion for arising.

The difficulty in which lies the possibility of this threat is growing out of the earnest and honest, but incoherent efforts to do good of enthusiastic specialists in various lines, each of whom sees his or her own segment of the circle, but none of whom appears to see its whole circumference. Therefore the importance of some agency which may consider the matter in

² This closes the author's introductory remarks.—Editor.

toto, has become apparent, establishing, for each of the unfortunately at warring interests, its own field of responsibility and intelligently and broadly providing for co-operation between them all.

This is a very vital matter. I have not the slightest personal doubt that all those at present at work are completely unselfish in their efforts, but the mere tendency of each one of them to specialize, prevents them, as individuals, from group work toward the highest general efficiency.

Society is getting no adequate measure of relief from the menace of the feeble-minded; the feeble-minded are by no means being given the best possible treatment; those on the borderline between normality and mental unfitness are by no means offered the most favorable opportunities now known to science to improve, rather than to sink below the horizon of normality into the dusk of permanently arrested mental development or definite and unnecessary deterioration.

The system as it stands (and there are no signs of improvement) is, first, wrecking many individuals who might be preserved to usefulness and happiness; second, it is morally contaminating through them many individuals who should be protected from what amounts to a contagion; third, it is burdening the State with the care of many individuals who in properly adjusted environments might not be a threat or need restraint; fourth, it is throwing into the community at large an immense number of individuals who, in one way or another, may be led into or become initiative of moral or criminal wrongdoing, and thus, through transmission of disease or their own defect, or through their own or induced offenses against property or life, tend to place upon the public burdens much greater than would have come from them had they been at first improved, supervised or segregated.

The problem of feeble-mindedness is complex in that it touches modern social life in many of its organized phases; it might be made simple if once the fact were recognized that this multiplicity of phases does not characterize the problem itself, but only its manifestations, and that if, through recogni-

tion of the real oneness of the problem, all the agencies at present attempting to deal with it, or affected by it, should be linked by a central agency, scientifically investigative and designed and qualified first to assemble the problem and then to separate it rightly into its different details, assigning each individual unfortunate, as he or she is classified, to treatment by that agency which especially is qualified for that particular branch of the work. The whole problem would thereby instantaneously be advanced far toward a solution.

Modern science has provided methods for the performance of this task, and that organized society does not take full advantage of these is a reproach against society, not against science; it is an evidence of an inefficiency which it is difficult to understand. For example, we know exactly what may be expected of the various feeble-minded types, and, furthermore, tests have been established by means of which most feeble-minded may be classified, with some accuracy, into their types.

These being the facts, in order to take full advantage of acquired scientific knowledge it remains necessary for us to find agencies through which, first, cases properly susceptible of feeble-mindedness may be uncovered and brought to official investigative notice, and, second, through which each case may be subjected to such an examination as will determine its type and may thus be classified either as hopeful or hopeless. The importance of this primary classification is too obvious to need elaboration.

The agencies through which feeble-mindedness may be uncovered are already in existence. They are our courts, our police, our hospitals, our churches, charitable organizations and philanthropic institutions, physicians and, more especially, our schools. For years they have been doing this work, sometimes casually, accidentally, sometimes scientifically, rarely competently. But the work has stopped there. It never has been systematized and made effective.

It must be made effective. Wherever the feeble-minded exist, each case, no matter how indefinite, sooner or later must give evidence of its existence and the vast majority of cases

will be evident at once. Careful and highly specialized investigation must immediately follow discovery and, after this discovery has been made, classification will be automatic.

It must be reduced to a **complete and efficient system**, and the value of such a system will go far beyond this mere primary classification and the segregation of the hopeless from the wholly or partially hopeful. Of course the first effect will be the disposition of the hopeless in such a way as will safeguard society most completely while subjecting those against whom it is safeguarded to the slightly possible discomfort. The proper disposition of the hopeless is a comparatively simple matter.

The proper disposition of the hopeful is a more complicated affair and is of vast importance, both to the unfortunate themselves and to the community as a whole.

In the investigations which must determine such disposition of a hopeful case as best may offer it opportunities for improvement, the utmost care must be exercised. Many cases that may very properly have been the objects of suspicion of feeble-mindedness, even in the minds of more or less trained observers, may not be really feeble-minded. There is as great peril in the improper classification of a child as feeble-minded as there is in the improper classification of a feeble-minded child as normal.

Many cases which properly are subject to the suspicion of feeble-mindedness, upon investigation may prove not to be feeble-minded in reality. The necessity for careful study of and treatment of such border-line cases is very great indeed.

A mental instability due to some peripheral continuous irritation may very easily make it impossible for the nervous system to react normally to environment and thus lay a non-feeble-minded subject open to the just suspicion of feeble-mindedness. But if the cause of this can be discovered and remedied, as is frequently the case, the symptoms of feeble-mindedness will disappear and a change for the better, which may bring the subject up to full normality, will be effected. Neglect of investigation leading to the proper treatment, would mean, in such a case, the waste of a human being. Thus cases which I define as

"simulated feeble-mindedness" may be regarded as of particular importance.

Again, a mental instability so marked as to be improperly classified as feeble-mindedness without attaching stigma to the judgment of the non-highly specialized investigator, may be due to various physical conditions, such as hyperthyroidism, which is generally amenable to treatment and sometimes is curable. Then, too, highly neurotic children, at the time of entering the period of adolescence, may be victims of a purely temporary inability to adjust themselves to environment and thus lay themselves open to improper classification as feeble-minded. In such cases it is obvious that time, itself, its effects supplemented by proper treatment, may be relied upon to effect improvement amounting in many or even most cases to complete mental recovery.

And if hyperthyroidism may lead to the unjust suspicion of feeble-mindedness, there are, also, cases of hypothyroidism of which the same is true. In hypothyroidism there is an under-supply of the thyroid-gland extract. In such instances science has provided means for the artificial supply of the missing extract in such ways as may very frequently bring about marked improvement or even cure.

I might talk at much greater length about cases of so-called "simulated feeble-mindedness," pointing my moral with many an illustration from personal experience, but the time limits of this paper make it impossible for me to more than hint at the known facts. Suffice it to say that it is now a well-established certainty that methods of investigation which would invariably and indisputably detect the feeble-minded would not only protect society against many hopeless cases which, if left at large, must menace it, but would reveal to science many cases which, under proper treatment, might be preserved to happiness and usefulness, but which, under the present system, or lack of system, are almost certain to be forced by neglect or improper care, out of the curable or improvable state into the incurable and hopeless state.

I must not give the impression, however, that science has solved all the problems of the feeble-minded and that all that

is necessary is the adoption of scientific methods already discovered in order to bring about a solution of the whole problem. Most cases of feeble-mindedness are incurable. There are feeble-minded types, not infrequent of occurrence, which wholly baffle science as it stands, but I have every reason to suppose that some of these, as knowledge progresses, may be found to be susceptible to treatment of a character which has not as yet been determined. In other words, science is making rapid strides in its consideration of this matter of the feeble-minded, and the time certainly is at hand when society should adopt such methods and machinery as will give it the full benefit of them.

To illustrate the possibilities of future revelations along this line, I need but to call your attention to what has occurred in the past. It was not so long ago that cretinism wholly baffled science, but, presently, investigation revealed its nature and suggested effective treatment. It is by no means impossible that similar work in connection with other varieties of affliction may bring about results as marked.

Herein, indeed, lies one of the strongest arguments for the establishment upon the basis of scientific efficiency of the investigatory work which I so strongly urge. It is sure that such desirable results will not be brought to pass without systematic effort amidst the best opportunities and with the best facilities. These opportunities and facilities do not exist at present. In the public institutions of this and other states are thousands of cases which properly are subject for study and investigation tending to an enlarged science and the improvement of conditions, yet little or no work is being done in this direction.

The subject has been tragically neglected by the various states, this State of New York among the number. It certainly is a legitimate demand of human progress that investigative work should be begun and thenceforth prosecuted in a scientific and searching manner. These immense quantities of material existing in our State institutions must be made use of through study for the benefit of future generations. It is a reproach against our civilization that in only one such institution in our State is investigative work in the laboratory in progress.

Outside such institutions little or nothing can be accomplished, for no outside material exists, or should exist. Inside the task must be taken up, for the benefit of the Commonwealth and humanity at large.

That we should be principally dependent upon accident for the discovery of feeble-mindedness and that accident should sometimes, if not often, lead to the classification as feeble-mindedness of conditions which are not really such, must truly be regarded as a melancholy situation.

Physicians and parents may or may not discover the condition before the affected child reaches the school age, and, discovering it, they may or may not properly report it; properly reported, the right steps may or may not be taken for its segregation or care if hopeless, or for its treatment if hopeful.

Feeble-minded children who have reached the school age may or may not be discovered as such and rightly classified and treated. If they are not discovered they become a threat against their fellows; if they are discovered and, in hopeful cases are not rightly treated, then they, themselves, are sufferers from great injustice.

In the courts, to which feeble-minded children are more likely than normal children to find their way, conditions even more deplorable exist, although more improvement is noticeable in the courts than in the schools.

Neither the teacher in the schools, nor the presiding justice in the courts, neither the truant officer nor the policeman on the beat, are qualified to judge as to a child's responsibility for indolence, apparent stupidity, or tendency toward disorder.

These are matters upon which expert judgment must be passed, if anything approaching justice is to be done, or anything approaching efficiency and the protection of society is to be achieved.

The fact is that this problem is not to be found exclusively in any of the branches of our public service which come into contact with the young. It touches all of them. It is no more exclusively a school problem than it is a court problem. And it is also a health problem and a charities problem. Truly it is a

sociological problem in about the broadest sense in which the word sociology may be used, for it affects the entire population, and, at present, all ages—and is growing.

It is apparent to me and to others who have made a careful study of the situation that it is useless and profitless to attempt to deal with it further by piecemeal. An imperative obligation rests upon society that it shall be taken up by wholesale.

This can be done only through the establishment of a central organization in each center of population, to which each one of the agencies likely to discover properly suspected cases may refer them for investigation, diagnosis and recommendation. These local central agencies must be organized upon the most highly scientific plane commanding the services of the most expert and must be equipped with every facility for their work.

Their establishment must be supplemented by the organization of a central bureau, or bureau of records, to which every case will be reported, so that the State, as a whole, may be informed of and keep track of every one of its unfortunate, but potentially dangerous individuals of this class.

The organization of the branch investigative departments should be principally medical and they should be closely allied to existing institutions, specializing in those various lines of research upon which there is most likely to be need to call. As for example, it has been often discovered that a seemingly mentally defective child owes its apparent stupidity to defective vision or hearing, or to some correctable condition tending toward the creation of a mental instability so marked as to interfere with normal mental processes.

REVIEW OF MEUMANN ON TESTS OF ENDOWMENT¹

BY LEWIS M. TERMAN, *Stanford University.*

C. Practical Problems of Endowment.

1. The Relation of Intelligence to School Performance. This question has two aspects. We may find the correlation of intelligence, (a) with the marks earned by the child in the school subjects and in school examination, or (b) with the teacher's estimate of the child's intelligence considered apart from his actual school work.

Meumann believes that correlation with school marks and examinations has the greater value. As Binet has shown, the teacher's estimation of intelligence is so unsystematic and partial as not to be very trustworthy. Indeed, for the results of an intelligence test to correlate almost perfectly with the teacher's estimate is itself evidence, says Meumann, against the validity of the test.

As Stern has emphasized, the teacher's estimate, to be of any value, must be guided by instruction as to what is meant by "intelligence," and also by instruction in the best method of arriving at the estimate. If several teachers rank a given class of pupils according to intelligence, and if all of them base their ranking largely upon the marks which the pupils have earned in their school work, the rankings will naturally correlate very highly with one another. But this high correlation is an artifact, and not evidence of the accuracy of the rankings. The rankings of a teacher who has been trained in the proper methods have been found to correlate rather poorly with the rankings made by untrained teachers.

Nevertheless, the common practice of correlating the results of intelligence tests with the teacher's estimate has a certain worth in the evaluation of the tests; also in the fact that it gives to the psychologist another and a supplementary view of

¹ This is the concluding article on this topic by Dr. Terman. The first, and second articles appeared in the December, 1914, and March, 1915, numbers of this Journal.—Editor.

the child's mental life, largely on its practical, concrete side. But our aim should be to place intelligence tests on their own feet as rapidly as possible.

The table of correlations which Stern has assembled, including the results of six investigations and embracing altogether about 2,500 children, shows an average correlation of .68 between the teacher's estimate and the pupil's class standing; an average correlation of .67 between the teacher's estimate and examination marks; and an average correlation of .89 among the estimates of different teachers.

The correlations which have been made between intelligence tests, on the one hand, and the teacher's ranking or school marks, on the other, show that tests of sensation and perception have very low correlation with school success, memory a somewhat higher correlation, imagination and thought a decidedly higher correlation.

It is important to note that when we seek correlations between school success and the results of psychological tests we presuppose a close correlation among the individual functions tested. But this does not always exist, since different functions have widely different values for intelligence. Hart and Spearman have suggested a method of eliminating this error by pooling these correlations, on the theory that high and low correlations compensate one another. Stern accepts this theory, but Meumann rejects it as misleading and psychologically unsound. Inferior ability in power of creative thought, for example, can not be really compensated by superior ability in memory or reproductive imagination. Meumann regards the theory of compensation as an example of reasoning in a circle. It rests on the assumption that a high inter-correlation indicates the reliability of the tests. This may or may not be the case. It is always necessary to analyze psychologically the basis of the correlations.

2. The Inter-play of Mental Functions. This is closely related to the problem of correlational psychology. It has been emphasized that certain functions militate against one another; that training of visual imagery, for example, is detrimental to

auditory imagery; that training in the intensity of attention affects attention span unfavorably, etc. Meumann believes that this result does not ordinarily occur and that various functions of this sort may be simultaneously improved by practice.

Meumann admits that the over-development of one function is sometimes accompanied by a weakening of certain other functions; that desultory memory, for example, may be so strong as to impair independence of judgment; that the development of the power of abstract thinking may impoverish sensorial imagination, or vice versa (e. g., artists are seldom good reasoners). He believes, however, that this does not involve a weakening of the power in question, but that the apparent weakening is due merely to the practical difficulty of developing many abilities simultaneously. There is lack of time and mental energy for many-sided improvement and completely harmonious development.

As has been emphasized already, the existence of a special ability leads to greater practice along the line of that ability, to a sort of division of labor among the intellectual processes in such a manner that the stronger functions take over the largest possible share in the intellectual activities. The result is that emotion and volition are gradually enlisted in support of the preferred functions, and this, in turn, leads to still further accentuation of the preference. One-sided sense memory tends to produce one-sidedness of mental imagery; acoustic-motor imagery favors memory for successive stimuli; visual imagery, memory for simultaneous stimuli, etc.

This raises some interesting questions as to the cause of certain typical divergences between children and adults. Is the child's weakness in abstract thought due to his lively sensorial imagination? Can we explain the child's overgrowth of imagination as the result of his fluctuating type of attention? Is his slowness in association due to his sensorial imagination and to his weakness in abstract thinking? Is his superior power of prolonged retention due to the greater number of repetitions which are necessary for his learning? Additional experiments

will be necessary before these questions can be answered with assurance.

The positive aspect of the inter-play of mental functions is also important. This is the question of "formal discipline." Meumann regards it as amply demonstrated that the improvement of a mental function may bring with it an improvement of proximate and related functions. He explains this as the result of the activities overlapping one another ("identical element"), and not as the spread of some mysterious influence from faculty to faculty.

3. The Improvement of Functions Which Are Weak. This is one of the most important of the pedagogical problems relating to the psychology of endowment. Meumann believes that a great deal can be accomplished in the way of leveling up the weak spots in an individual's endowment. Experiments made both by Meumann and by Thorndike have shown that a relatively small amount of formal drill is capable of improving to an astonishing degree such functions as memorization, addition, multiplication, hand-writing, etc.—functions in which the individual has had desultory practice perhaps for years. One of Meumann's subjects required in the beginning an average of forty-six repetitions to learn a series of ten non-sense syllables. Four weeks of brief daily practice reduced the number of necessary repetitions to four or five and four additional weeks reduced the number to one. Even the formal qualities of attention can be changed: the fluctuating type to the fixating, and vice versa; slow adaptation of attention to rapid, etc.

How far can we go in this? Is it possible by formal drill to level up all of a child's weaknesses? Would it be possible to go farther and develop, say, the musical ability of a Beethoven in an ordinary child? The last question must be answered in the negative, because the average person can not be practiced in the more complex musical traits that go to make a Beethoven; he does not have these traits at all.

Great improvements of special weakness, however, is possible in all except the feeble-minded, and the school has here one of its chief duties. If a given child has difficulty in mastering

numbers, the psychological basis of this weakness should be ascertained and suitable exercises given to repair the underlying weakness. Such a case, for illustration, might be traced to a peculiarity of imagery type. Similarly, a child's inferior ability in drawing might be found on investigation to rest upon faulty habits of observation, lack of manual dexterity, weak memory for form or color, weakness of spacial imagination, etc. As all of these functions are capable of great improvement by formal drill it might be possible to overcome the difficulty in our hypothetical case by replacing for a time the regular instruction in drawing with formal exercises of the function most concerned in the difficulty.

Meumann even suggests that it might be possible in this way to bring every school child, not actually feeble-minded, up to the normal standard of school success! At least "ausserordentlich viel" could be accomplished toward this end. The main difficulty, he thinks, would be the practical one of finding enough time in the pupil's school day for the necessary drills.²

4. Sex Difference in Endowment. Meumann gives only a brief review of the evidence on this question, quoting chiefly from the studies of Cohn and Diffenbacher, and Miss Hoesch-Ernst. He is inclined to attribute the differences, including even those which have appeared rather consistently in the different investigations, to the influence of environment and training rather than to sex as such. Hoesch-Ernst's data gathered from boys and girls attending co-educational schools in the United States, gave no such differences as those found by the same

² Meumann's suggestion is most challenging, but one may reasonably doubt whether the time and effort necessary for leveling up the weak spots of the retarded could not be more profitably expended in bringing supernormal children up to their highest possible level of efficiency. It is not clear, either, why the method should be more applicable with the dull-normal than with the feeble-minded. Meumann's exception of the latter from the application of this principle rests upon the questionable assumption that the feeble-minded child belongs to a special type essentially and qualitatively different from the normal child. If, as many believe, there is no line of demarcation between feeble-mindedness and normality, but continuous variation instead, then the principle of formal drill would apply both to the dull-normal and the feeble-minded, or to neither. It is a question, indeed, whether we should find it any more possible to take the normal-dull child who is so retarded as to grade just above the line of feeble-mindedness and bring him up to the level of the average child than to bring the imbecile up to the level of the dull-normal. Dullness is just as fundamental a deficiency, even though not such an extreme one, as imbecility or morosity. Stories of dullards evolving into brilliant students and enjoying a successful business or professional career belong strictly in the category of mythology.—
Reviewer.

author among German boys and girls who had attended separate schools and whose environment in other respects had favored, to a greater extent than in America, the development of (artificial) sex differences.

5. Individual Differences. One of the most important contributions of the psychology of endowment lies in the proof it has furnished to the astonishing range of individual differences among children. This is a fact which psychology can no longer afford to ignore. Exceptional talent must be recognized and fostered, and the child who fails to make normal progress should have his difficulties analyzed with a view to treatment by special training. However, it is not necessary, or even desirable, to segregate in special class all the children who differ from the average. All except the extreme cases can be given, in the regular class, all the special training which they need, and the leveling effect of mass instruction is not without its advantages.

6. Sociological Aspects of the Psychology of Endowment. The endowment studies are plainly of great social significance. In the first place it is important that we should ascertain the effects of different kinds of social environment upon the different kinds and grades of mental capacity. Meumann believes that the results of intelligence tests with children of high and low social classes demonstrates the magnitude of the environmental influence upon mental development, and for this reason he questions the wisdom of public school systems which fail to take account of this influence.

In the second place, it is important for society to know the possibilities of the children it is trying to educate; to know what abilities exist, and how they are distributed; to know how many feeble-minded, dull-normal, normal, and supernormal children there are and where each individual child ranks in this scale of values. It is especially important that no handicap of social environment be allowed to stand in the way of special talent, wherever it may be found.

APPENDIX.

MEUMANN'S TEST SERIES ARRANGED FOR USE IN
HAMBURG.

Explanation. There are ten tests for each age, with systematic repetition of each as recommended by Terman and Childs. As far as possible, Binet's tests are retained so as to make the results comparable with others. The classification of the tests in three columns indicates in each case whether the test is primarily a test of maturity, or intelligence, or milieu. Tests of maturity and milieu decrease up the years, while tests of intelligence increase. The appearance of a test in more than one column indicates that it has significance in more than one respect. For example, test V, 2 is a test of both maturity and of intelligence. That this test is printed in the "intelligence column" means that for this age it is primarily a test of intelligence.

- 1.
- 2.
- 3.
- 4.
5. Description of pictures:
(a) Spontaneous,
(b) Directed.
Perspective.
Two performances with
Binet's second picture.
6. Attention span:
(a) Dots not grouped,
(b) Dots grouped.
- 7.
9. Patience test.

Intelligence tests.

1. Comparison of 2 weights
50-100 g.
100-150 g.
2. Repetition of 2-4 letters or
digits and easy sentences
of 8-10 syllables.
4. Copying a square, six repetitions.
- 5.

Milieu tests.

3. Counting 6 pennies.
- 5.
7. Time orientation:
Forenoon and afternoon,
When does one go to
church?
How many days may we
work each week?
8. Vocabulary test (like Ter-
man and Childs).
10. Naming 6 colors.

- 1.
- 3.
4. Moral judgment:
(a) Moral of fables.
(b) Judgment on imagin-
ed situations.
8. Time orientation:
tomorrow, day after to-
morrow, yesterday, day
before yesterday, sea-
sons.
9. As in V, 6.
- 10.

2. Repetition of 3-6 letters
and sentences of 14-26
syllables.
3. Aesthetic comparison:
(a) Simple pictures (Bi-
net).
(b) Of different artistic
pictures.
(c) Of ugly objects and
pictures.
5. Definition of familiar words
fork, chair, doll, horse,
soldier.
Spontaneous and directed
definitions: use, descrip-
tion, classification, dif-
ferentiate.
6. Three commissions.
10. Like V, 4.

1. R. hand, L. ear.
7. Questions about age, occu-
pation of parents, resi-
dence, brothers and sisters,
where father passes the
day, the mother's house-
work, coins, materials,
metals, a few articles of
furniture.

VII

4. Repetition of 4-7 letters, and sentences of 16-28 syllables.
 9. Attention span, as in V, 6.
 - 10.
-
1. Omissions from pictures.
 3. Copying, as in V, 4.
 4. Description of pictures as in V, 5.
 5. Combination:
 - (a) using 2 words in a sentence.
 - (b) 3 words in a sentence.
-
2. Copying 3-5 words.
 6. Counting 20 coins. ("show me how many you can count").
 7. Naming 6 coins, questions about national colors, postage stamps of four different denominations.
 10. Naming 7 leading colors and 3 shades.

VIII

3. Adding pennies:
 - 3 plus 3, 3 plus 2, 3 plus 5.
 3. Naming 10 colors, as in VII, 10.
 4. Counting backwards, 20-1.
 5. Writing from dictation:
 - (a) Sentence of 8 syllables.
 - (b) Sentence of 16 syllables.
 10. Ball and field test (like Terman and Childs).
-
1. Two memories from a story.
 6. Comparison of 2 objects from memory:
 - fly and butterfly,
 - box and basket,
 - stairs and ladder,
 - duck and swan,
 - hat and cap,
 - wood and glass,
 - railroad and street car,
 - stinginess and economy,
 - mistake and lie,
 (Both difference and similarity to be given.)
 9. Description of pictures and objects as in V, 5.
 - 10.

<p>7. Attention span, as before.</p> <p>9.</p>	<p>4. Definitions: (a) Spontaneous, and (b) Directed, i. e., by asking definitions of other words similar to those given for spontaneous definition. For example, spoon (after fork), table (after chair), policeman (after soldier), dog (after horse), etc. 5. Reading for 6 memories. 6. Arranging 6 weights (like Binet). 7. Description of objects and pictures, as in VIII, 9. 9. Repetition of 4-7 letters and sentences of 14-30 syllables.</p>	<p>1. Time orientation, as in VI, 9. Also birthday, season in which Easter, Pentecost and Christmas come. 2. Naming the days of the week and months of the year. 3. Making change, 1 M—80 Pf. 10. Vocabulary test, (like Terman and Childs.)</p>
<p>1. Repetitions of 4-6 letters or digits, and sentences up to 40 syllables. 9. Suggestion, with lines. 10. Aesthetic judgment, as in VI, 3.</p>	<p>3. Making sentences containing 3 or two words: (Hamburg-wealth-river, donkey-blows, sky-red, snow-dirty, etc.) 4. Comprehension questions (like Bobertag). 5. Fables test (like Terman and Childs).</p>	<p>1. Time orientation. (Naming months of year. Otherwise like IX, 1). 2. Knowledge of coins, paper money, postmark, address, time table). 3. Space. 5. The unfolding experiment. Copying a drawing (V,4). 7. Vocabulary test (like Terman and Childs). 10.</p>

XI

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|---|---|--|
| <p>7. Immediate memory, as before but more difficult.</p> <p>8. Cancellation of letters (e, n, s) like Bourdon.</p> | <p>1. Absurdities (Binet's and others).</p> <p>2. Two words in a sentence.</p> <p>3.</p> <p>4. Abstractions:
pity, justice, envy, friendship, family, sins.</p> <p>5. Disarranged sentences (Binet and Bobertag).</p> <p>6. Logical association:
Ordering concepts,
Giving cause or effect.</p> | <p>3. 60 words in 3 minutes:
street, schoolroom, dress, kitchen, living room, playthings, railroad.</p> <p>After 10 minutes (?) hesitation other rubrics given.</p> <p>9. Spatial imagination.
What figure would be described if we should rotate this triangle about one of its sides?</p> <p>10. Vocabulary test (like Terman and Childs).</p> |
|---|---|--|

XII

- | | | |
|--|---|--|
| <p>1. Repetition of 6-9 letters or digits, and sentences up to 40 syllables.</p> <p>4. Attention span, as before.</p> <p>5. Line suggestion, and suggestive questions in report experiment (pictures).</p> | <p>1. Finding rhymes.</p> <p>3.</p> <p>7. Definition of abstract terms: (a) spontaneous, (b) by asking for illustrations.</p> <p>8. Logical association, as in XI, 6.</p> <p>9. Combination, as in XI, 2.
Also completion of questions, as per Groos.</p> | <p>3. Completion test, as per Terman and Childs.</p> <p>6. Vocabulary test as per Terman and Childs.</p> <p>10. Aesthetic judgment, as before.</p> |
|--|---|--|

XIII

5. Syllogism test
(Storring, Burt, Meumann).

1. Repetition of 6-10 letters or digits, and content of easy sentences up to 30 words, also content of abstract sentences up to 30 words.
- 2.
3. Moral judgment, as in XIII, 8.
9. Suggestion problems, as in XII, 5.
Criticism of actions.

1. Folded paper (Binet).
2. Reversed triangle.
3. Distinctions between abstract terms (mistake-lie, etc.)
4. Ordering of concepts and working with casual relations (association test and method of Groos).
- 5.
6. Difficult comprehension questions (path of a cannon ball when cannon is horizontal).
8. Fables (Terman and Childs).
9. Ethical judgment.
Making a story out of key words.

- 1.
- 2.
4. Difficult stories out of key words.
5. Association, as in XIII, 4.
6. Abstract terms, as in XII, 7.
7. Syllogism test, as in XIII, 5.
8. Spatial imagination.
Royce's ring test, Binet's folded paper test, rotating triangle, reversed triangle.
- 9.

7. Vocabulary, as per Terman and Childs.
10. Aesthetic judgment with difficult objects (comparison of pictures and examples of sculpture).

2. Aesthetic judgment, as in XIII, 10.
- 9.
10. Writing from dictation
handwriting, spelling, memory, comprehension).

XIV

XV
and
above

1. Immediate memory, tasks of increased difficulty.	1. Differences between president and king.	2. Aesthetic judgment, as in XIII, 10.
2. Moral judgment, as in XIII, 8.	4. Combination, as in XIV, 4.	10. Vocabulary, as per Terman and Childs.
	5. Spacial imagination, as in XIV, 8.	
	6. Logical association, as in XIII, 4.	
	7. Definitions, as in XII, 7.	
	9. Syllogism test, as in XIII, 5.	

MENTAL TESTS FOR FEEBLE-MINDED: A NEW SERIES

BY S. D. PORTEUS, *Superintendent of Special Schools, Melbourne,
Australia.*

Some years' experience in the use of the Binet-Simon tests has led the writer to place increasing confidence in the accuracy of the scale, as far as it goes. Examination of the individual records of some two hundred and fifty children seems to show that, though some tests are too easy and others too difficult for their places in the scale, the errors tend to counter-balance one another and the general reliability of the scale is unimpaired. In the same way easy and difficult years tend to compensate for each other. This is possible through the system of allowing "advance credits," and this plan gives the scale a certain elasticity and equipoise. How necessary such a system of computing advance credits is appears from the large number of children who pass in tests in three and more years ahead of the highest age passed in full. This proves the necessity of "wide range" testing, and, incidentally, how difficult it is to determine norms of mental developments for successive years of chronological age.

Yet, notwithstanding the general usefulness of the scale, there are certain objections which tell heavily against it when it is used with feeble-minded children. Chief of these is the objection regarding the influence of the child's previous training. In Australia, where a well enforced system of compulsory education obtains, previous training has, in the case of normal children, an approximately equal influence, but with deficient children, on the other hand, it is not so. These latter have had usually a very unsuitable training or possibly none at all. Hence many questions that may be easy for the normal child are too difficult for the deficient child of equal intelligence.

The feeble-minded child very frequently suffers from a

morbid shyness that no attempt of the examiner can overcome. The child may not be frightened of the examiner in particular but simply lacks confidence in itself. In many other cases there is defective speech. For children such as these the Binet form of memory tests is unsuitable. To repeat a long sentence such as "His name is John. He is a very good boy," is as much a test of the child's self-confidence as of its memory. Defective speech obviously hinders in questions of the definition or description type. The conclusion seems to be that the Binet-Simon tests favor the trained over the untrained and the superficially bright, loquacious child, ready to have a try at anything, over the unresponsive subject whose mental gifts may be of the more solid, though less showy, order.

Among other minor objections may be noted the contention that some of the questions can be answered too mechanically, and are not, therefore, of much value in determining mental status. In several instances this appears to be true.

But the chief deficiency of the scale is one of scope. There are certain aspects of intelligence that should be examined more thoroughly than the Binet tests attempt to do. There are certain capacities in which the feeble-minded are markedly deficient. Among these we might mention mental alertness, prudence, forethought, power of sustained attention. Mental alertness is certainly tested by the Binet tests, but only in certain directions. There are insufficient "common sense" tests. In other words intelligence is not sufficiently tested in concrete situations. As Ayers has so fitly remarked, "The Binet tests test the child's ability to use words rather than to do acts." After all, even in every-day life, what a person knows is not a sufficient indication of what he is. What he can do provides a much more practical test of his mental worth.

Prudence and forethought are but rarely exhibited in the behavior of feeble-minded persons. They seldom have, or use the capacity of looking forward and of weighing the results of their actions. Trial and error methods suffice. Fernald and Healy in their valuable study of the mental development of delinquent boys (see their Monograph) appear to recognize fully

the necessity of testing the capacities of prudence and foresight-
edness. Many of their ingenious tests do certainly achieve the
purpose aimed at. But they bear the defect—as regards their use
with the feeble-minded generally—that they could hardly be
graded to suit children of lower mental levels than the children
for whom they were arranged. They apparently are suited to
a mentality of from twelve to fourteen years and their value
lies in the aid they afford in determining the mental status of
boys who have reached the age of responsibility from a legal
point of view.

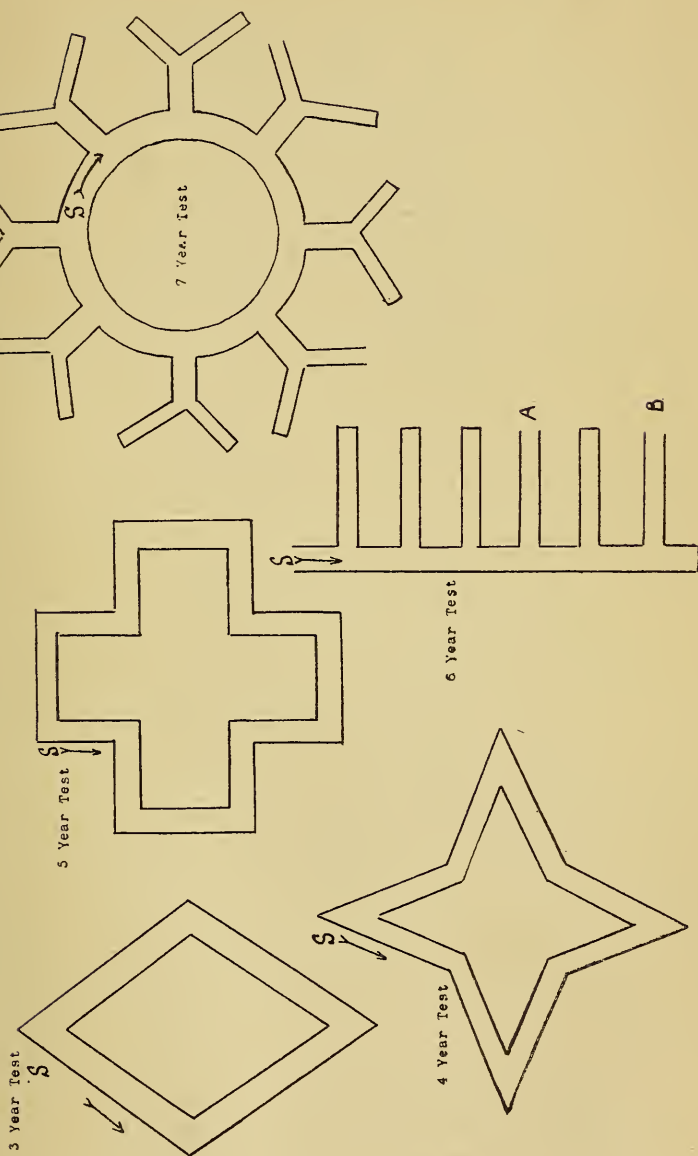
There seems to be, then, an urgent need for a series of tests
graded according to age; a series which will aim at testing par-
ticularly these important capacities, and to which, as far as can
possibly be arranged, the objection noted above will not apply.
Such a series, if correctly graded, would prove a somewhat
valuable supplement to, and partial corrective of, the Binet-
Simon scale.

The Motor-Intellectual series of tests—named thus for want
of a better designation—which is described in this article, is
the outcome of an attempt to supply this need. The series was
brought before the British association at its meeting in Mel-
bourne in 1914, and its working and comparative results were
then demonstrated.

The first three tests, graded for three, four and five years'
intelligence, respectively, are partially tests of foresight, pru-
dence, and mental alertness. The task set for the child is sim-
ply to trace around a given outline between the two guide
lines. This is done with a blunt pointer and by means of trac-
ing paper the child makes its record on a sheet of paper placed
underneath. If the examiner traces the guide lines before re-
moving the test paper he may judge of the child's success as
regards fidelity to the given outline.

The deficient child below this mental level (three, four and
five years) has so little ordinary prudence and foresight that,
while he gives his undivided attention to the movement of the
pointer, he fails to anticipate changes in direction and conse-
quently rounds off the corners, in many cases cutting across in

Plate I



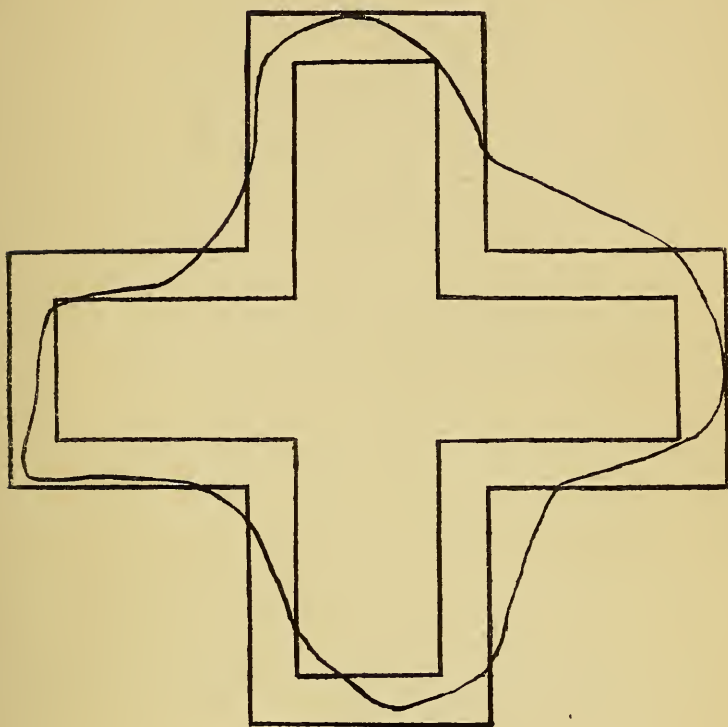
such a way that the angles disappear and the curves take their place. The lower the mentality, the more the angles are obliterated and the nearer the child's tracing approaches the form of a rude ring-shape. This curious result is most apparent in the cross design (five-year level). Here the child's attempt is usually as illustrated. By results in this test alone a very close comparison may be made of children below the five-year level. The lower tests on this account might be eliminated altogether. They remain more for their value as a practice series leading up to No. 3. Another possible explanation of the child's failure is that its perceptions are so blurred that it does not actually see the outline but perceives the object in mass. Poor motor control may, of course, militate against the child's success. It is not evenness of line, however, that is required, but fidelity to outline. It is desirable, certainly, that a purely motor test such as the tapping test should be used in conjunction with the M. I. series.

The six and seven-year tests prove the child's ability to understand and carry out simple instructions. In the former test the open passages running at right angles are pointed out to the child, also the fact that all other passages are closed. He must then move the pointer down from the starting point and find his way out by the opening already pointed out. Inability to alternate his attention quickly from one activity to another is again a cause of failure. Children below this level commonly explore all the side passages whether closed or not. As soon as a mistake has been made the instructions are repeated and the test recommenced. The child must not be allowed to continue working at the test until successful. This may have the effect of making succeeding tests easy. The idea of this prohibition is to eliminate all effects of previous practice except such as is given in the ordinary sequence of the tests themselves.

The seven-year test is similar, but the openings are not previously pointed out to the child.

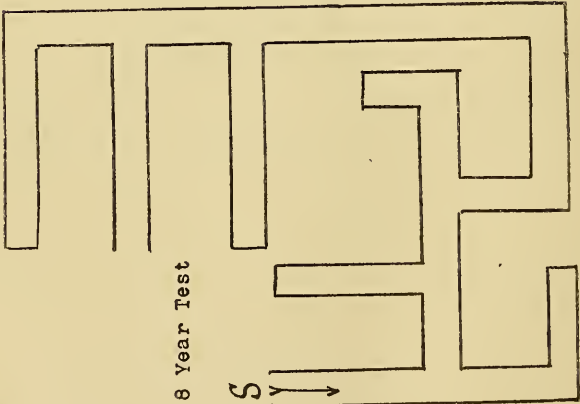
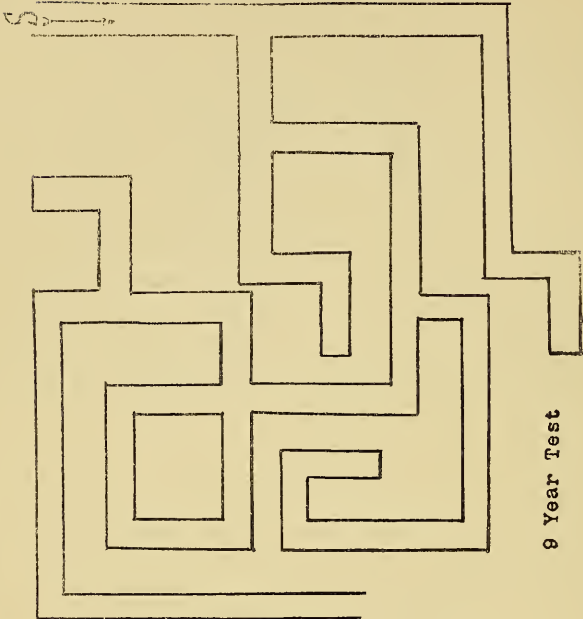
The higher tests are more essentially trials of foresight and prudence and power to sustain attention. They are ar-

Plate II



A typical failure in the five year test
showing the rounding of corners

Plate III



ranged on the maze system and are so constituted as to present a recurring problem to the child. There is only one correct route and the child has to choose at each branch of the way which direction to take. The conditions of the test are such that success can hardly be achieved by trial and error methods. Two trials are, however, allowed in each test. This is so that the scale may be sufficiently elastic. An error may be made simply through carelessness, but the child should be capable of profiting by its experience sufficiently to learn the lesson of the need of watchfulness.

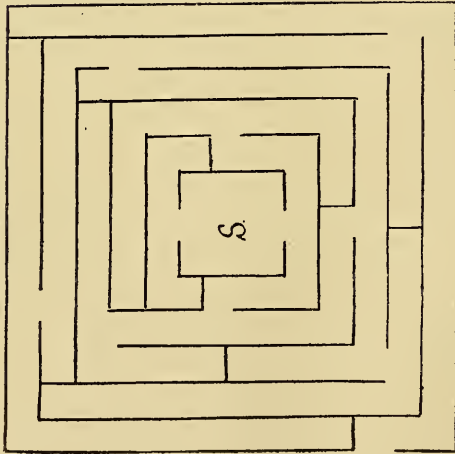
By adding the number of possible errors or by grouping the lines forming the design more closely together so that a greater strain is put on the attention, the complexity of the tests is increased. By this means they may be graded for the various age levels.

For purposes of diagnosis it would seem fairer to compare the deficient child not with the average, but rather with the dull normal child of equal age. The tests should then be a little easier than those for the corresponding Binet years. Reference to the Graph accompanying this article will show that the M. I. series places the children in a large majority of cases above the Binet. The small difference between the estimates by the Binet and the new series in so many cases appears to go towards proving the general accuracy of both series. Where there is a wider difference between the two estimates it is not contended that the Binet is incorrect, but simply that the M. I. series tests in other directions. What the Graph goes to prove is that while intelligence as measured in this way is usually correlated with mental development in the directions tested by the Binet it is not always so. The dullard in class is sometimes the adept in the work shop. In such cases it is obviously unfair to compute the child's intelligence by class standing or book knowledge only.

In other cases where there is morbid shyness or defective speech an oral examination such as the Binet is manifestly unfair. The estimate of intelligence by a series requiring a motor response will be probably much nearer the mark. In the case of deaf and dumb children the meaning of the test may be

Plate IV

12 Year Test
(3 trials allowed)



13 Year Test
(3 trials allowed)

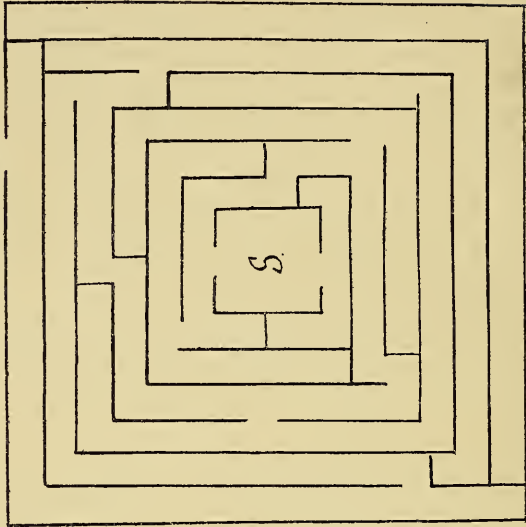
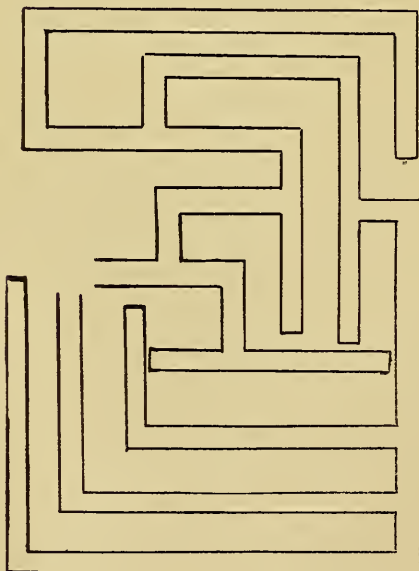


Plate V

10 Year Test



11 Year Test

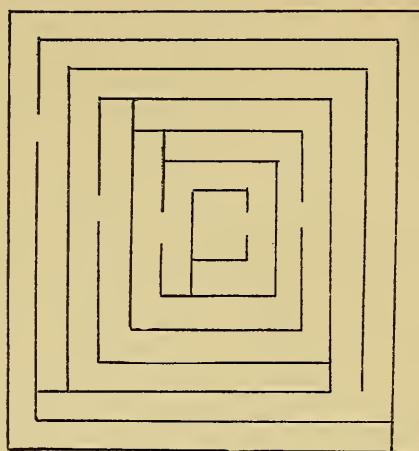
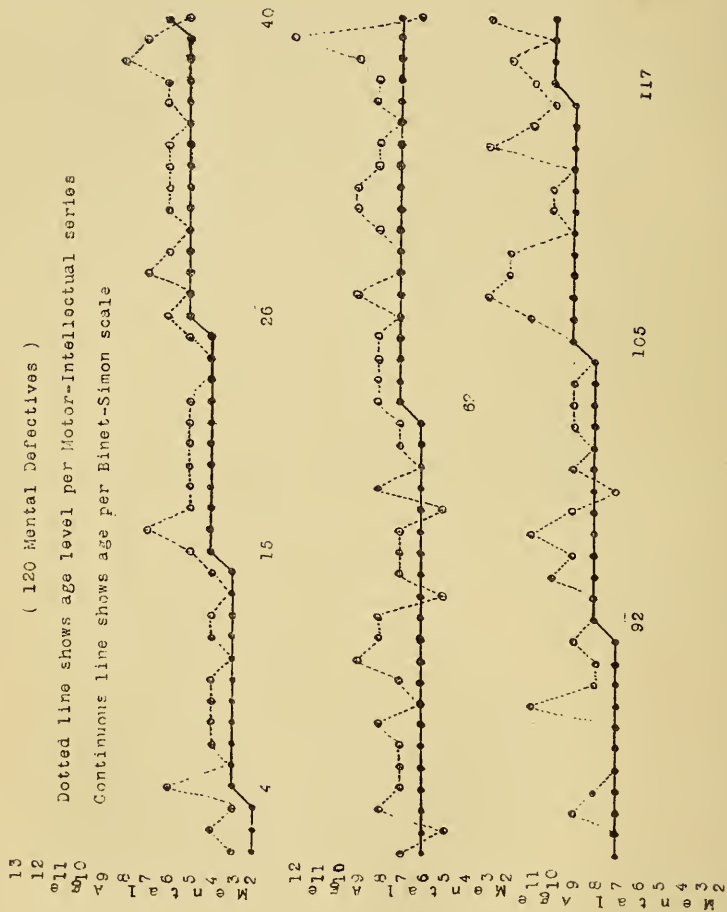


Plate VI
GRAPHS SHOWING INDIVIDUAL RECORDS BINET AND M.-I. SERIES



demonstrated in lieu of the usual instruction. The examiner may illustrate with a test of similar design or the test itself may be inverted and used to illustrate the procedure. Only such help as is necessary for the child to understand the test should be given.

The sub-joined table gives a summary of the amounts of difference in the estimates per Binet and per the M. I. series, as shown by the Graph. The latter shows the individual records of 100 children taken at random from a large number.

TABLE SHOWING COMPARISON OF RESULTS PER
BINET AND PER M. I. SERIES.

Number of children testing one year below the Binet age..	6
Number testing the same as the Binet age	27
Number testing one year above the Binet age.....	57
Number testing two years above the Binet age	18
Number testing three years above the Binet age	8
Number testing four years above the Binet age	3
Number testing five years above the Binet age	1
Total	120

It will be seen by referring to this table that in 90 cases (75 per cent.) there is not more than one year's difference in the two estimates. Making allowance for the fact that the new series has been arranged so as to be a little easier than the Binet, the two estimates in a large proportion of cases appear to corroborate one another. In the remaining 25 per cent. of cases there is a wider margin of difference. Neither estimate need necessarily be incorrect. In using the two series of tests we have increased our knowledge of the child's capacities. By his greater success in the new series he has proved the possession of greater executive ability and general intelligence than the Binet examination brought to light. If diagnosis with regard to mental deficiency is called for, consideration should certainly be given to both results. Though primarily intended for use with defectives, the tests have yielded very interesting

results with normal children. In most cases the backward, the average and the exceptionally gifted may be picked out by their results proving that they do indicate general intelligence. Results obtained with normal children are being tabulated and will be published in due course.

Though it is not claimed that the tests are absolutely diagnostic as regards deficiency, yet, in conjunction with other tests, they will prove useful in this respect, for they certainly add to our knowledge of individual capacity. Full instructions as to methods of applying the tests are appended. It is necessary that these instructions should be carried out strictly in the application of the tests.

Three Year Test: Illustrate by tracing around the outline with a blunt pointer. Instruct the child to keep within the guide lines. Two trials may be allowed. Ability to understand instructions and to make some attempt at tracing the outline registers a pass. Children below this mental level move the pointer wholly at random.

Four Year Test: Proceed as in previous test. Fidelity to outline is expected from children at this level.

Five Year Test: Illustrate as in three year test. If more than two corners are missed—the pencil running outside the guide lines—a fail is recorded. Two trials are, however, allowed.

Six Year Test: This may be illustrated by referring to the paths in a garden. The two openings (A and B) are pointed out to the child. All other "paths" are shown to be blocked at the ends. Place the pointer at the starting point (S) and tell the child to find its way out by the first opening it comes to. Emphasize the instruction that it must not go along any "blocked paths." If the opening at "A" is missed by the child or other mistake made, repeat the instructions and allow the child a further trial. Further unsuccessful fails.

Seven Year Test: This test is similar to that for six years, but the openings are not pointed out to the child. The pointer must be moved in a circular direction from the starting point (S) and the first opening found. If another opening is

passed through the child should be told it has missed the first opening and given a further trial.

Eight Year Test: In this test the child must find his way through without previous demonstration by the examiner. He should be warned to look carefully at the design, before commencing, and not to go along any "blocked" paths. Instructions should be given during the progress of the test. If a mistake is made the second trial should immediately be commenced.

Nine and Ten Years: The test for these years are similar and the conditions are the same as for eight years.

Eleven, Twelve and Thirteen Years: These tests are arranged on a different plan. The procedure is, however, the same. Additional warning should be given with each test as to the need for care and attention. In the twelve and thirteen year tests three trials are allowed. In every case of failure the child should not be allowed to complete the test. The second trial, or the next test, as the case may be, should be proceeded with immediately the mistake is made. Credit the child with the highest age in which he succeeds under the above conditions.

The simplest language possible should of course be used in explaining the procedure to the child.¹

¹ The form of the Binet-Simon scale that has been used in the investigation is that published in 1911 and revised by Dr. Goddard. Some slight modifications still remain to be made to suit Australian conditions, but Dr. Goddard's revision has been found to be eminently serviceable. The value of the work of this investigation, as well as that of Fernald, Healy, Kuhlmann, Huey, and others should be highly appreciated by all interested in psycho-asthenics. The course of their experiments is followed with keen interest here.

WHAT CONSTITUTES FEEBLE-MINDEDNESS?

BY F. KUHLMANN.

The object of this discussion is to consider the main current definitions of feeble-mindedness, and criteria that have been used as a means of diagnosis, with the view of calling attention to the multiple and discordant standards that are now commonly followed in deciding on the classification of borderline and doubtful cases. These will all be considered from the standpoint of practical applicability in the diagnosis and classification of the individual case. To serve this object it will be a propos first of all to show the present increasing need of some practical criteria, aside from the need of harmonizing contradictory ones.

A. The Growing Need of Some Practical Criteria.

We have many laws concerning the feeble-minded; laws about commitment into special institutions, about permanent and limited retention in institutions, sex and age discriminations with reference to commitment and retention, about responsibility in crime, asexualization, marriage rights, property rights, etc. The recent rapidly growing interest in the feeble-minded is increasing these laws at a great rate. In no state, however, to my knowledge, does the law attempt to define what constitutes feeble-mindedness. It is assumed that this may be left to the judgment of competent persons. In some instances the qualifications of such persons have been in some measure defined. This, indeed, is all that is usually necessary to meet the requirements of the average case. But there is a constant tendency to include higher and higher grade cases in the category of the feeble-minded, which is particularly strong at the present time. As this is being done the number of cases that comes up for consideration and which requires close judgment increases all out of proportion to the increase in the grade of intelligence that is added to the upper grade of feeble-mindedness. The common view on this question seems to be quite

erroneous, even with those who have more than a merely casual knowledge of the subject. It is based on the theoretical consideration only, which regards the distribution curve for different grades of intelligence as bell-shaped. That is, as we pass from the lowest to the highest grade of intelligence, larger and larger numbers of individuals belong to each successive higher grade until the grade of intelligence represented by the average individual is reached. Grades of intelligence above the average have a decreasing number of individuals with increasing distance above the average, so that the distribution curve on the number of individuals belonging to each grade is bell-shaped. How closely this assumption corresponds with the exact facts can be tested only by the grading of all individuals of a large, representative community. This has never been done. The English survey, however, of certain districts in England, Wales, and Scotland, with a total population of 3,873,151 gives us sufficient data to revise this view about the bell-shaped character of the distribution curve. From this data Tredgold estimates the relative number of cases belonging to each grade, for the country as a whole, to be as follows:

	Idiots	Imbeciles	Morons
	6	18	76
or, approximately.....	1	3	12

Assuming that these three grades together constitute one per cent., for example, of the general population, gives 1,584 normals for every 16 feeble-minded. The general form of the distribution curve would depend, further, on into how many grades we re-divide the normals. Since the curve is supposedly symmetrical, there must be three grades above the average, corresponding to the three grades of feeble-minded below the average. Regarding the exact average as a mathematical point to which theoretically none belong, gives a minimum of five grades into which the normals must be divided, with the whole curve running as follows.

Grade	Idiot	Imbecile	Moron	Just below average	Just above average	Very bright	Preco- cious	Very pre- cocious
No.	1	3	12	784	784	12	3	1
Per Cent	.0625	.1875	.75	49	49	.75	.1875	.0625

This shows that when the range of intelligence called normal is divided into as many as five grades 49 per cent. of all the individuals in the general population belong to a grade of intelligence between the moron and the average intelligence. The distribution curve would be more like the outline of a very small bell with a very long, heavy handle, instead of bell-shaped. It indicates that the borderline cases, the cases about which there may be doubt as to whether they should be classified as normal or feeble-minded, may be a great many times more numerous than all the present grades of feeble-minded taken together. This must be all the more the case since it is certain that the relative number of morons is much larger than is indicated by the English statistics. With rough methods the higher grades escape detection while the lower grades do not. As we draw the lines more closely, therefore, which is the present tendency, it becomes increasingly more important from a numerical standpoint alone to have precise criteria of feeble-mindedness. It is not true, as is often held, that the doubtful case occurs so infrequently as to make the problem of refined methods of determining unimportant. The doubtful case occurs more frequently the more closely we attempt to draw the line, unless our methods of diagnosis improve at the same time. But progress in the improvement of our methods of diagnosis does not necessarily keep pace with the desire and attempt to classify cases that are doubtful definitely as feeble-minded or normal. The sudden appearance of more reliable mental tests has improved our methods of diagnosis greatly, but the increased interest in feeble-mindedness in the schools, reformatories, juvenile courts, and everywhere is crowding our improved methods of diagnosis for still greater accuracy perhaps more just now than has ever been the case before. We are more in need of precise criteria of feeble-mindedness, from the practical standpoint, than we have ever been before.

B. Practical Applicability of Current Definitions and Criteria.

Definitions are so numerous and various that it would be futile to attempt to discuss them individually with reference to their accuracy and practical applicability in dealing with the

feeble-minded. Let us call attention to two essentials of a practical definition, and then consider the different types and phases of definitions or criteria in regard to these essentials. A practical definition must be, first, scientifically correct, and second, applicable in the diagnosis and classification of the **individual living case**. There are a great many definitions that are entirely correct so far as they go, but are entirely inapplicable in dealing with individual living cases. There are about as many that are applicable enough, but are inaccurate and inadequate in their designations.

1. The use of physical symptoms as a means of diagnosis may at once be eliminated as inaccurate. They are easily observed, but are no accurate criteria of feeble-mindedness, much less a means of making close distinctions between grades not far removed from each other, for which purpose they are entirely out of the question. To be sure, there are a number that have been shown to occur more frequently with the feeble-minded than with the normal, but this alone does not make them useful criteria for diagnosis for individual cases. It is a regrettable fact that so many elaborate clinical blanks still give a large space to various traits that may be classified under this heading. In numerous instances the data called for can have no diagnostic value whatsoever because definite knowledge of any relation between mental defect and the physical trait is entirely lacking.

2. Much the same may be said of the consideration of the causes of mental deficiency as a means of diagnosis, bearing in mind the distinction between a physical trait as a symptom, merely, and physical trait as a cause. Factors that are in general recognized as causes of feeble-mindedness occur too frequently with normals. On the other hand, causes that have been present in the feeble-minded can too often not be detected in individual cases. A definition of feeble-mindedness based on causes would therefore be both inaccurate and inapplicable in practice. At the same time, few would agree that hereditary causes should be left out of consideration in determining the classification of a doubtful or borderline case as

feeble-minded or normal. When they are taken into account, however, let us remember that it can not be for the sake of deciding the grade of mental deficiency. It can only be a measure of precaution and expediency, with eugenic motives only. If a case is so nearly feeble-minded or normal that all sources of information leave doubt there are justifiable grounds for letting hereditary considerations decide how he shall be classified and treated. The objection to this procedure lies in extending this consideration to cases that, from other sources of evidence, are not doubtful cases, but are distinctly of normal mental development.

3. Incurability has come to be accepted almost universally as one of the essential features of feeble-mindedness. Even when the diagnosis has been based primarily on the results of mental tests, which in themselves give no clue as to curability or incurability, the reservation is made that incurability must be an additional characteristic to constitute feeble-mindedness.¹ There are good reasons for limiting the term feeble-minded to the incurable class. First, the vast majority of mentally retarded are undoubtedly incurable. To instil the popular mind with the idea that feeble-mindedness is curable, even though with the reservation that it is only very rarely so, would surely lead to much misdirected effort in behalf of entirely incurable cases, unless some means were found of counteracting this natural tendency. This belief is still widely held among laymen. Second, there is undoubtedly some real distinction to be made between curable and incurable mental retardation from the standpoint of the causes that produce it. Third, although feeble-mindedness has not always been considered incurable, it is now a quite well established tradition with the informed to so regard it. The term is well fixed in this respect. Fourth, the classification of a curable case as feeble-minded and corresponding treatment, such as commitment to a special institution, would under present conditions stigmatize the child and family, and might lead to other injustices. On the other hand, the definition of feeble-mindedness as incurable leads to

¹ See especially Huey, "Backward and Feeble-Minded Children," Baltimore, 1912; and Holmes, "Conservation of the Child," Phila., 1912.

grave difficulties in practice, when borderline cases are under consideration. The determination of the present grade of intelligence of a given case may be relatively easily and accurately made. The determination whether a given case is curable, can be brought up to normal, may be quite impossible. Let us suppose a case nine years old, with a mental age of six. According to common practice the grade of intelligence in such a case is rightly classed as that of feeble-mindedness. But the physical condition of the case in question might be of such a nature as to account for much of the mental retardation, which might be largely or wholly remedial. How much may we attribute to a bad nutrition, enlarged tonsils, adenoids, poor condition of the teeth, and a great many other such factors? In the present state of our knowledge the obvious answer is that we can not tell. We are yet very far removed from being able to say in the individual case just how much mental improvement will follow removal of any of the physical defects or conditions that are in a general way regarded as responsible for mental retardation. This subject is full of contradictory opinions, based on no very tangible facts. It is entirely possible for the case in the illustration just given to be curable. It is possible that such a case might catch up a year or more in mental development as a result of treatment, which would put him in the class of the intellectually normal. To make incurability an essential feature, therefore, renders it impossible to classify such cases as normal or feeble-minded until after treatment, and after time is allowed for the effects to appear. The time necessary to allow is also undetermined. In the meantime, since his present **mental** condition is that of feeble-mindedness, the case for the time being needs the care and treatment adapted to feeble-mindedness. If this care and treatment is given, as it should be, the distinction between curable and incurable vanishes, except in name. Let the case in the illustration be a juvenile court case with strong delinquent and criminal tendencies; the practical difficulties will then be obvious.

The important question becomes that of which set of difficulties can be the most easily overcome, and how this can

be done. There is need of doing this before we define feeble-mindedness either as curable or incurable.

4. Recent definitions tend strongly towards making success in life, or ability to make an independent living, a basis for defining feeble-mindedness. The most widely quoted and adopted is one suggested by the Royal College of Physicians of London, and reads: The feeble-minded person "is one who is capable of earning a living under favorable circumstances, but is incapable, from mental defect existing from birth, or from an early age, (a) of competing on equal terms with his normal fellows; or (b) of managing himself and his affairs with ordinary prudence." This was adopted by the Royal Commission appointed by the English government in 1904 to investigate the conditions of feeble-mindedness in the British Isles. The American Association for the Study of the Feeble-Minded appointed a committee on classification which tentatively adopted a definition essentially the same, which reads: "The term feeble-minded is used generically to include all degrees of mental defect due to arrested or imperfect mental development as a result of which the person so affected is incapable of competing on equal terms with his normal fellows or managing himself or his affairs with ordinary prudence."² Other definitions from this sociological standpoint, and which may be recognized as more or less modifications, merely, of the above have appeared. Notably among such may be cited those of Tredgold and Witmer. Says Tredgold: "We may define amentia (the term he uses for feeble-mindedness) as a state of mental defect from birth, or from an early age, due to incomplete cerebral development, in consequence of which the person affected is unable to perform his duties as a member of society in the position of life to which he is born."³ In his 1914 edition this is revised to read: Feeble-mindedness is "a state of restricted potentiality, or arrest of cerebral development, in consequence of which the person affected is incapable at maturity of so adapting himself to his environment or the requirements of the community as to maintain existence independently of external

² Journal of Psycho-Asthenics, 1910, P. 61.

³ "Mental Deficiency." New York, 1908. P. 2.

support."⁴ Witmer does not attempt a full definition in a single sentence or two, but his idea may be gathered from the following: "The defectives are those who have so many and such severe mental defects that they are unable to overcome these defects as a result of expert training, and must therefore reach adult age arrested in mental and moral development, industrially incapable of earning even a modest livelihood, and socially a menace oftentimes to themselves and their families, and always to society, either by virtue of their own behavior or their retained capacity to reproduce their kind. * * * We define the feeble-minded child as a result of social considerations. He is the child who for his own good and for the good of society should be segregated for life."⁵

Let us attempt to judge these definitions again from the double standpoint of scientific accuracy and practical applicability. First, the modifications offered by Tredgold, and Witmer. Tredgold adds an important phase in the last part of his definition, "in the station of life to which he is born," a point recognized also by others, especially Binet and Simon. This acknowledges that a person might be rightly classified as normal in one kind of social environment, and as feeble-minded in another. A person might, for example, be able to perform his duties as a member of society in a simple rural environment, but not in the much more complex urban environment. Or, he might be normal if he attempted to follow only a low standard of living, but feeble-minded if he attempted to follow a higher standard of living. The justification for this additional phase of the definition, however, stands or falls with the justification of defining feeble-mindedness from the sociological standpoint in the first place, for it only points out a further consequence or implication of such a definition. This will be considered further in a moment. The additional phrase, "due to incomplete cerebral development," while it may not depart from scientific accuracy, makes the definition inapplicable in the classification of individual living cases. We are entirely unable to demonstrate

⁴ Page 8.

⁵ Children with Mental Defect Distinguished from Mentally Defective Children. *The Psychological Clinic*, Dec., 1913.

the cerebral development in the living case, with the exception of an insignificantly small number of instances. If this had to be done but few cases could be classified at all.

Witmer's criteria present possibly two phases that would raise difficulties in the practical application to individual cases. The first is stated in, "that they are unable to overcome these defects as a result of expert training." This is on a par with making incurability an essential phase of feeble-mindedness. To determine whether a case can overcome the defects through expert training by first giving him this expert training would require too much time for the purposes demanded of a practical definition applicable in diagnosis. The second is stated in "their retained capacity to reproduce their kind," if by this reference is made to the fact that the children of feeble-minded are liable also to be feeble-minded. The impracticability of making the consideration of causes a phase of the definition was noted above.

Let us turn to the more general phase of these definitions that are based on success in life, or ability to make an independent living. There are three terms in the one given by the Royal College of Physicians of London concerning which difficulties might and undoubtedly would arise in attempting to apply it in practice. These are, "favorable circumstances," "equal terms," and "ordinary prudence." The most expert judges would surely often disagree as to whether the circumstances under which a given case had attempted to earn a living had been favorable or not, or whether the terms under which he had been competing with normals had been the same as for the normals, and most of all, as to whether his conduct had shown ordinary prudence. These are all relative terms, subject to the varying interpretations of different judges. How varying the interpretations on such matters may be is readily seen when we recall how frequently and flagrantly experts disagree on the mentality of cases in courts. The social test is difficult to apply. Aside from this, such a definition can not lay claim to scientific accuracy, so far as it attempts to define grade of intelligence only. This much is conceded by the definition itself, when it

intimates that an individual might be classified as normal in one environment, and as feeble-minded in another. A scientifically accurate definition does not change standards in the way this does. Moreover, success in life, or ability to make an independent living, is not an accurate criterion of intelligence in any case. In a broad, general way it undoubtedly holds true. But we are considering everything as we must in practice, from the standpoint of individual cases. We know from general observation that even under essentially the same environmental conditions some fail to make an independent living partly because of lack of intelligence, while others with no higher intelligence succeed. Our most successful business men are not all among the most intelligent, and surely a great many of our most intelligent men do not rank correspondingly high as business successes. We know further from recent results of mental testing that there is a certain number of cases, by no means small, which fails in the social test, but measures intellectually considerably above the grade of feeble-mindedness as determined by the same mental tests, though not equal perhaps to that of an average normal person. On the other hand, there is an equal number of cases which as measured by the scientific standard of mental tests, are feeble-minded, yet do not fail in the social test. There is an extensive over-lapping. A given grade of intelligence will in one case pass the social test though not the intelligence test, while in another case it will fail in the social test.

The social test may be considered from still another standpoint—that of individual rights. If a person can and does make an independent living without interfering with the rights of others the state should have no grounds for classifying and treating him as feeble-minded, even though his mentality as tested by some accurate scientific method clearly proved him to be feeble-minded on the basis of this latter standard alone. The contention seems valid, but applies only to any case for the time being, and does not consider future possibilities. A person passing the social test, but otherwise feeble-minded, is always potentially one who may at any time interfere with the rights

of others, because of his mentality. He is the potential delinquent or criminal. He is also the potential parent of feeble-minded children who will most likely fail in the social test, as well as interfere with the rights of others in other ways. On the other hand, if a case fails in the social test, but is found from other sources not to be mentally retarded sufficiently to be classifiable as feeble-minded, there may be a justification for classifying him thus nevertheless, because of his failure in the social test. The defective delinquent is the typical illustration of this class. As long as the state makes no special provision for this class, and since these cases must be made state charges, they are equally well placed or misplaced in the institution for the feeble-minded and the reformatory.

The status of the social test appears then, in a word, to be as follows. It is difficult to apply, and it is a matter of the judge's own interpretation as to whether a case has passed or failed in the social test. As a criterion of grade of intelligence it is scientifically inaccurate. An otherwise feeble-minded person passing the social test, may still be rightly classified as feeble-minded. A person with a mental retardation less than that of feeble-mindedness, but failing in the social test, may for practical purposes also be classified as feeble-minded. Finally, the social test is, from the nature of the case, applicable only to adults.

5. The recognition that there are variations in mental traits other than intelligence as technically defined which when combined with only a slightly deficient or even normal intelligence may cause the individual to fail in the social test has led to the view that feeble-mindedness as a mental defect can not always be defined in terms of lack of intelligence alone. This view is expressed most fully by Huey, whom we may quote at length. "Feeble-mindedness, like insanity, involves much more than the intelligence; and its correct diagnosis often involves the expert consideration of various clinical phases. * * * Feeble-mindedness blends, along most of its upper margin, into the populous and turbulent zone of the psycho-neuroses."⁶

6 Backward and Feeble-Minded Children. Baltimore, 1912. Pp. 8-9.

"Now (with beginning adolescence) the problem of life is not the further growth of intelligence so much as the use of what has been grown, to serve and to give direction to the feelings. It is now normality of will, of self-assertion and self-criticism, of social sense and attitude, and of the emotional control that must be tested for. And here in the rich but precarious field of functionings are found the next higher rungs of the retardation ladder, naturally with the function of sex playing a prominent part. * * * We have then the higher grade feeble-minded of the type (1) whose chief defect is in the intelligence, shading over into their higher degrees to the pupils who in Dr. Cornell's terminology are normal, 'not tainted but dull.' We have them (2) of the type when the chief defect is in the will and in the social adaptation of their functions, shading over into neurasthenia and, on the side of emotional control and dissociation, the hystericals. We have them (3) of the type whose thought fails to take account of the concrete tests of action, shading over into the cases which may develop the bizarre vagaries of dementia praecox. (4) We have the type which in the higher grades clearly shows its kinships with mania, melancholia, and circular insanity. We also have to trace a type (5) that tends to give us our criminals and moral degenerates."⁷ On first thought the suggestions here made raise many difficulties in the way of finding a brief and precise definition of feeble-mindedness. A critical study, however, will clear away at least some of the troubles. Our attention is first called to the need of defining further still more of the terms of our definition. Since there is practically an absolute agreement on limiting the term feeble-mindedness to cases who have failed to develop mentally in a normal degree, or are developing at a slower rate than normal, we may accept this as an essential feature. It follows that we must either use the term "development of intelligence" as synonymous with "mental development," or show that the development of the intelligence always runs exactly parallel with the development of the mind as a whole, if we are to define feeble-mindedness in terms of intel-

⁷ Retardation and the Mental Examination of Retarded Children. Journ. Psycho-Asthenics, 1910. Pp. 33 and 38.

ligence. If we do the former, as I think we must in the present connection, it will become clear that most of the types that Huey defines as types of high-grade feeble-minded are not cases of feeble-mindedness, because they do not represent an arrest of normal mental development. They represent a highly varied, very complex, and as yet little understood intermediate group, shading into the different forms of insanity, as Huey notes, yet for the most part, if not entirely, without marked sensory disturbance, delusions or emotional anomalies, on the one hand, and little or no lack of intelligence or mental arrest, on the other hand. They are frequently further complicated with abnormal habits of thought and action acquired through unfavorable environmental influences. They readily fail in the social test for feeble-mindedness and because of the absence of definite symptoms of insanity are often classed as feeble-minded. In the opinion of the present writer they should not be so classed, because they require a different kind of care and treatment, and have a different kind of capacity for usefulness. Their existence, however, makes the social test of feeble-mindedness still more difficult of application.

6. Ever since the Binet-Simon tests have come into general use feeble-mindedness has been defined by some in terms of mental age. Assuming that the mental ages obtained with these tests are always exactly correct, it seems at first a simple matter to determine the mental age that must be ascribed to the feeble-minded and thereby define the term on the basis of mental age. The committee on classification appointed by the American Association for the Study of the Feeble-Minded, already referred to, attributed mental ages of 8 to 12 to morons, mental ages of 3 to 7 imbeciles, and of 0 to 2 to idiots. But these designations, although the report does not specify, obviously were intended to apply only to adults, as, indeed, they only can. For average normal children do not reach this upper limit of twelve years in mental age until they are twelve years chronologically, while at birth all would have a mental age of zero years. In dealing with children instead of adults the difference between age and mental age was taken as a measure of

grade of intelligence, and feeble-mindedness was defined in terms of the number of years difference, or mental retardation. It seems not to have been at once fully recognized that no one given number of years of mental retardation can be taken to indicate feeble-mindedness, independent of the chronological age. This seems to be true even of Binet and Simon as late as 1908 when they published the first revision of their tests. For here they still discuss the gravity of a mental retardation of one or two years, without taking the chronological age into account. Even in their 1911 revision they note that a child must not be regarded as mentally arrested if the mental retardation does not exceed two years. In their "Les Enfants anormaux," published in 1907, however, they state that a pedagogical retardation of two years may indicate feeble-mindedness in children under nine years chronologically, while it takes three years for the same in children over nine. Kramer⁸ observed in 1911 that the same grade of intelligence in children is represented by an increasing amount of difference between age and mental age as the chronological age increases. Chotzen⁹ after examining a number of feeble-minded children with the tests comes to this conclusion, and notes further that "Children from 8 to 9 years may be retarded one year, and children 11 to 12 years may be retarded two years, without being feeble-minded; on the other hand, children of these ages with a retardation of two to three years have certainly no longer a normal intelligence." This also is the conclusion of Bobertag¹⁰ after examining his own results with the tests. He says more definitely than Chotzen: "From these facts alone it may be concluded that up to the age of nine years a mental retardation of two years is necessary to constitute feeble-mindedness, while for older children the retardation must equal three years." Goddard and others have followed similar rules, each thereby making his own exact definition of feeble-mindedness. Elsewhere the present writer

8 Die Intelligenzpruefung bei kriminellen und psychopathischen Kindern. Bericht ueber den zweiten Verhandlungstag des I Kongress fuer Jugendbildung zu Dresden, 11, 1911.

9 Die Intelligenzpruefung Methode von Binet-Simon bei schwachsinnigen Kindern. Zeitsch. f. angew. Psychol., 1912.

10 Uber Intelligenzpruefungen (nach der Methode von Binet und Simon), Zeitschr. f. angew. Psychol., 1912.

has noted that the amount of mental development during a year can not be taken as an accurate unit for measuring intelligence.¹¹ It should be noted in passing that in all these instances the questions as to curability, heredity, physical symptoms, etc., are left entirely out of consideration in defining feeble-mindedness.

The grounds for postulating an increasing number of years of difference between the age and mental age to constitute feeble-mindedness as the chronological age of the child increases lie, first, in the supposed fact that the normal rate of mental development decreases with chronological age. If a young child grows mentally much more during a year than does an older child then obviously one year of mental retardation means the more the younger the child, and the number of years of retardation necessary to constitute feeble-mindedness must increase with age. To show that the rate of normal mental development decreases with age Bobertag quotes some general observations, as well as some results with the Binet-Simon tests showing that the percentage of children that pass given tests increases much more from the ages of six to seven than it does from the ages of eleven to twelve. The latter fact has been fully verified by the present writer¹² in similar results. But as was there pointed out, its significance in regard to the question of a decreasing rate of mental development with increasing age might not be as great as appears on the surface.

The second reason for postulating an increasing number of years of difference between age and mental age to constitute feeble-mindedness as the chronological age of the child increases lies in the supposition that feeble-mindedness is essentially a retarded rate of development, and that therefore the older the feeble-minded child of a given grade of intelligence the more years of mental growth he will have fallen behind the normal. This was noted by the present writer.¹³ Bobertag

11 See "The Binet and Simon Tests of Intelligence in Grading Feeble-Minded Children," this Journal, 1912; "A Revision of the Binet-Simon System for Measuring the Intelligence of Children," this Journal, Monograph Supplement, 1912; "Degree of Mental Deficiency in Children as Expressed by the Relation of Age to Mental Age," this Journal, 1913; and, "Some Results of Examining a Thousand Public School Children with a Revision of the Binet-Simon Tests of Intelligence by Untrained Examiners," this Journal, 1914.

12 "Some Results of Examining a Thousand School Children, etc."

13 See, "Degree of Mental Deficiency," etc., and "Some Results of Examining a Thousand School Children," etc., just quoted.

brings out the view of feeble-mindedness as a retarded rate of mental development, but does not discuss its connection with this question.

A third consideration lies in the possibility that the mental development of the feeble-minded stops entirely at an earlier age than with normals. This view is given by Chotzen, Stern,¹⁴ and Goddard.¹⁵

The bearing this has on a definition of feeble-mindedness lies in the question as to in what manner the difference between age and mental age postulated to constitute feeble-mindedness must increase along the whole course of mental development. On the face of it, it would seem to require a finer adjustment than has been made so far. To make the age of nine an abrupt turning point, requiring two years' mental retardation to constitute feeble-mindedness below this age, and three years above this age, is arbitrary and surely inaccurate for both the much younger and much older children, without considering the question as to when intellectual development stops entirely. If it **does** stop entirely at about the age of fifteen it would obviously make all much older children appear as feeble-minded to regard a difference between age and mental age of three years as constituting feeble-mindedness.

7. This difficulty has been recognized and has led Stern, Bobertag, and the present writer to propose what Stern has termed the "Intelligence Quotient" as a measure of intelligence. This is the figure or per cent. obtained by dividing the mental age by the age. Feeble-mindedness may be defined by fixing the limits in intelligence quotient to be attributed to it. In this connection Stern shows that for the children of the Hilfschule examined by Chotzen the average intelligence quotients are distributed as follows:

Ages	Not feeble-minded	Questionably feeble-minded	Morons	Imbecile
8	.92	.84	.76	.71
9	.85	.81	.77	.67
10	.80	.80	.74	.62

These children had been previously diagnosed by the schools as belonging in these four classes. This shows an intelligence

¹⁴ See references above.

¹⁵ "The Improvability of Feeble-Minded," this Journal, 1913.

quotient of less than .80 for definitely feeble-minded, the morons. Bobertag considers the same fact, and suggests similar intelligence quotients for the different grades of intelligence, but doubts whether the intelligence quotient is accurate for all ages. For 350 consecutive examinations with my revision of the Binet-Simon tests at the Minnesota School for Feeble-Minded I found the following distribution in number of cases belonging to the different intelligence quotients:

I. Q.	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91+
No.	19	36	29	41	55	64	56	33	8	9

In obtaining these figures it was assumed that development of intelligence stops at the age of fifteen, so that the mental age was never divided by more than fifteen for the age. This shows an intelligence quotient of over .80 for seventeen, or 4.9 per cent. of the cases. Among this 4.9 per cent. were five very young children, aged a few months to five years, who had been born in the institution or were temporarily admitted with their feeble-minded mothers. Other observations verified the fact that these were undoubtedly normal. Three cases over eighteen years had failed in the social test, and belonged to the defective delinquent class, or possibly to such classes as described by Huey. Eight others, aged six to eighteen years, were partly wrongly diagnosed before admission, as shown by other records before and after leaving the institution again, or possibly showed general improvement after admission. A further study of each individual case with an intelligence quotient of over .80 left none that could with certainty be classified as feeble-minded. I have elsewhere¹⁶ suggested that cases with an intelligence quotient of less than .75 may be regarded as feeble-minded, while those with an intelligence quotient of over .80 may be regarded as normal, leaving a doubtful area from .75 to .80.

Some objections have been raised to using the intelligence quotient as a means of defining feeble-mindedness and other grades of intelligence. Stern and Bobertag note that to be correct for all ages it implies that the feeble-minded keep on

¹⁶ *The Mental Examination of Reformatory Cases. Am. Journ. of Crim., Vol. V, No. 5, Jan., 1915.*

developing intellectually as long as normals do. But Stern thinks that this total cessation of intellectual development occurs the earlier the lower the grade of intelligence, so that for the idiot grade the intelligence quotient could have but little meaning. If this view were correct it would mean that the intelligence quotient would decrease abruptly for feeble-minded cases at the age when intellectual development ceased, and could to this extent no longer be regarded as a true index of intelligence, since this age would vary with the grade of intelligence in the first place. But the view is only an assumption, which, however plausible it may seem on first consideration, has no established facts to support it.¹⁷ In the meantime, we can not without evidence assume that the opposite is true, and that the intelligence quotient is a correct index of intelligence, so far as this is concerned.

Bobertag and the present writer have pointed out a second objection. This is connected with the view, which in itself undoubtedly is in the main correct, that the rate of mental development of normals decreases with age, and that with the feeble-minded this rate of development is at all ages behind the normal rate. This being granted, Bobertag concludes that "a defect would increase with age not only absolutely but also relatively"; the intelligence quotient would decrease with age. This conclusion, however, does not necessarily follow. It follows only if still another assumption is granted, an assumption which I also made in discussing this point before.¹⁸ The intelligence quotient will decrease with age in the case of feeble-minded children if the amount of mental development during any year is determined by the chronological age rather than by the mental age. If it is determined by the mental age the intelligence quotient may remain constant. To make this clear, let us suppose a case with a mental age of four at the chronological age of eight, indicating at this point a rate of development just half that of the average normal. What will deter-

¹⁷ Re-examination after intervals of one to three years of cases in the Minnesota School for Feeble-Minded now in progress at present rather indicate that many cases continue to develop, some even beyond the age of fifteen. An analysis of these results will be reported later.

¹⁸ See "Degree of Mental Deficiency in Children," etc., this Journal, 1913, P. 139.

mine the amount of development during the next two years? Will he develop half of what the average normal child would from eight to ten, or will it be half of what the average normal child would develop from four to six? If the former is the case the intelligence quotient will decrease, on the basis of the assumption, which is granted, that the rate of development in normals and feeble-minded decreases with age. If the latter is the case this need not be true. To show that the intelligence quotient does as a matter of fact decrease with age Bobertag quotes some results derived from Chotzen's table, which give an average intelligence quotient of .79 at the age of eight; .72 at nine; .70 at ten; and .67 at eleven to twelve, for the children of the Hilfsschule. The same may be seen in figures quoted by Stern, and given above. This evidence, however, is misleading, since this decrease in intelligence quotient holds true of normally developing children as well as it does of the feeble-minded. It is due to the fact, established by all investigators, that the tests measure slightly too high for the lower ages, the error decreasing towards the higher ages where the tests measure too low. Bobertag's results for normal children give figures from which the following intelligence quotients are derived: 1.05 at the age of eight; 1.00 at nine; .98 at ten; and .96 at ten to twelve.¹⁹ Intelligence quotients derived from results of others testing normals show a similar decrease for these ages. On the other hand, I have shown that the average mental ages of the inmates of the Minnesota School for Feeble-Minded increase with chronological age in a manner very closely parallel to the mental ages computed on the basis of the assumption that the intelligence quotient remains constant. These results were as follows:²⁰

Age	6—8	9—11	12—14	15—17
Av. M. A.	2.8	4.1	4.9	5.5
Computed M. A.	2.6	3.7	4.8	5.5

Here the average mental age of all cases with chronological ages from six to eight was 2.8, etc. The computed mental ages are derived by assuming that the rate of mental development

¹⁹ See article quoted above, P. 503.

²⁰ See "Degree of Mental Deficiency," etc., P. 141.

throughout for such an "average" case would be 5.5-15.0 of the average normal rate, i. e., 5.5-15.0 of the average of six to eight, or seven years, etc.

Assuming any given intelligence quotient as the dividing line between feeble-mindedness and the normal, and considering the different ages and mental ages that will all give this intelligence quotient will show how inadequate any practice must be that makes an abrupt turning point at the age of nine, requiring two years of mental retardation below this age to constitute feeble-mindedness, and three years above this age. The following ages and mental ages all give an intelligence quotient of .75.

Age	4	8	12	16
M. A.	3	6	9	12
Diff.	1	2	3	4

Here the mental retardations range from one to four years, between the ages of four to sixteen, for one and the same grade of intelligence, as given by the intelligence quotient. Moreover, all the objections against the intelligence quotient as a measure of intelligence must hold true equally against the amount of mental retardation measured directly in terms of years. The intelligence quotient must, therefore, be regarded as the most accurate index of intelligence of any that are based on mental tests. It does not follow from this, however, that the Binet-Simon tests in their original form are adequate always for drawing the fine distinctions in grades of intelligence that in practice we are often called upon to do. For, granting that on the whole an intelligence quotient of .75 or less, for example, indicates feeble-mindedness, and one of .80 or over, normal intelligence, the variability in the results obtained with the tests is still so large that a barely normal case might sometimes appear as barely feeble-minded, and vice versa. For the upper mental ages the same examiner on two immediately successive examinations of the same case sometimes varies by three or four points in the mental ages found in the two examinations, although as large a variation as this occurs only occasionally. But this is enough to change the classification from defi-

nately feeble-minded to definitely normal. An increase in mental age of four-fifths of a year for the second examination could change the intelligence quotient from .75 to .80. Again, the applicability of the intelligence quotient in practice is determined by the practicability of giving the mental tests on which it is based. At present mental tests can not always be given where the individual still needs to be judged as to his grade of intelligence. Less accurate methods must in such cases suffice.

C. Summary and Conclusions.

The so-called physical symptoms have so far appeared too inaccurate a means of diagnosis to merit consideration for this purpose.

Causes of feeble-mindedness can not be used as a means of diagnosing grade of mental deficiency, but in doubtful and borderline cases hereditary causes known to be present may justly be a eugenic motive for classifying a case in question as feeble-minded rather than as normal if a classification has to be made.

To make incurability an essential feature of feeble-mindedness leads to difficulties in diagnosis, and to other objections. To disregard this feature may under present conditions also lead to serious objections. It is an open question as to which set of difficulties are the more easily overcome.

The social test, or the ability to make an independent, honest living, is difficult of application, and is scientifically inaccurate as a means of determining grade of intelligence. For practical purposes and as a matter of expediency, failure to pass the social test by a borderline case may be taken as grounds for classifying a case with the feeble-minded rather than with the normal.

The rules followed of arbitrarily choosing different numbers of years of mental retardation at different ages as constituting feeble-mindedness can only be approximately accurate, and is not the best method of grading intelligence on the basis of mental tests.

The intelligence quotient, or mental age divided by the age

is the most reliable criterion of grade of intelligence. An intelligence quotient of .75 or less is always indicative of feeble-mindedness, provided the mental age as determined in the first place is correct. Cases with intelligence quotients immediately above this constitute the borderline and doubtful cases, concerning whom other considerations than those of intelligence may and must be taken into account in order to make a classification.

The number of cases belonging to this borderline class is very much larger than any similarly limited grade below this.

For this group of borderline cases, for which there at present exist multiple standards of diagnosis, there is great need of improvement of methods, of agreement on what may be regarded as criteria of feeble-mindedness, and especially of arriving at a uniform evaluation of these, in order that undue stress may not be placed on any one.

Multiple standards of diagnosis are commonly employed not only for really borderline cases but are frequently extended to the diagnosis of other cases irrespective of grade of intelligence. This is done on the basis of the idea that a diagnosis will be the more reliable the more extensive and varied the inquiry, and the wider the consideration of all conceivable factors. This idea is not only entirely erroneous, but the practice is all the more unfortunate because the procedure gives the outward semblance of great thoroughness and accuracy, deluding both the examiner and the layman. Great thoroughness of inquiry into factors that in the first place are not sound criteria of grade of intelligence can only mislead instead of add to the accuracy of a diagnosis. A consideration of a variety of factors all of which may have some relation to grade of intelligence, though that be small, is valuable, but this may also lead to error instead of to greater accuracy, when their importance is wrongly evaluated in relation to other factors that have a much closer relation to grade of intelligence. One of the present chief difficulties in following multiple standards of diagnosis lies in this fact. We have at present no method of combining the results from a variety of sources of inquiry, such

as is called for by most clinical blanks, so that each factor may count for what it should. It is highly desirable that such a method be devised.

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NEWS AND NOTES

The State of Minnesota is to try out the plan of state support to special classes for deaf, blind, speech defective and mentally sub-normal children, in any special, independent, or common school district in the state.

Under the authority of Chapter 194 of the Laws of 1915, application can be made by any such district to the State Superintendent of Education for permission to establish a school for one or more of the above classes, and if there are not less than five (5) children of any such class between the ages of four (4) and sixteen (16) [as to deaf children ten (10) to sixteen (16)] in actual attendance, the State Superintendent may grant permission to establish such school. For every child taught in any such school for deaf, blind, or mentally deficient, holding a nine-months session, the State Treasury shall pay to the district \$100 on July 1st succeeding. For each defective speech pupil, the law specifically provides for a pro rata payment of a like amount, when the term of instruction in the case of any pupil is less

than nine months. In the other cases, the Department of Education will require a full term attendance to secure the state aid. In general the Superintendent of Education must approve of the plan of instruction, and the qualifications of instructors. The instruction for the deaf must be, according to the combined system which includes the oral, aural, the manual, and every method known to the profession; and the courses and methods of instruction shall be substantially equal or equivalent in efficiency to the course and methods of instruction established and employed in the State School for the Deaf at Faribault.

Dr. E. A. Meyerding, medical examiner for the public schools of St. Paul, has been the moving spirit back of this legislation, and his idea has been to attempt a practical training near their own homes of such children of any of these classes as may presumably be as well trained in a properly equipped day school, as they would be in a boarding school. There has been no friction between the people interested in this movement, and the management of the state institutions at Faribault.

Soon after the law became effective, the Superintendent of Education called a meeting of the superintendents of schools in St. Paul, Minneapolis, and Duluth, with their medical examiners, the Professor of Education for the State University, and the superintendents of schools for special classes at Faribault (Deaf, Blind, and Feeble-Minded), for the purpose of discussing a plan of organization, qualifications of teachers, and eligibility of pupils. As a result the Department of Education adopted, among others, the following rules governing the schools for the mentally subnormal:

1. Teachers will be known as Directing Teachers and Assistant Teachers.

2. They both must have academic and professional qualifications equivalent for those required for teachers doing corresponding work in the special state institutions, at least two years' successful experience in teaching normal children, and those who will teach the speech defectives and the subnormal, special preparation at least equivalent to that given in the summer term in connection with the School for Feeble-Minded at Faribault.

The directing teachers must have had at least one year's experience in teaching the special class.

The teachers must have certificates for their work, either "local" or "general."

3. The selection of teachers and fixing of their salaries rests with the local superintendent of schools.

4. Admission to the schools will be upon the authority of the local Superintendents based upon the standard tests recognized and accepted by the departments of education. *No child to be admitted to the Classes for Subnormals who is less than two years nor more than four years below the normal development for his age.*

5. All remedial physical defects which may in any way hinder the

child's development, decrease or impair his physical or mental capacity, must be removed or remedied before admission to any of the special classes.

6. *The establishment of special schools will be restricted to school districts which provide regular and adequate medical inspection and health supervision.*

How the plan will work out is yet to be determined.

Speaking only of the schools for the mentally subnormal, the first effect, of course, is to stimulate a demand for teachers of special qualification for this work. The intelligent, well-trained and conscientious institution teacher is being appreciated outside of the institution as never before, and it is impossible to supply the demand for such.

The movement will bring the work of the institutions and the public schools into closer relations than have heretofore existed, and this will be good for both.

There will be a more pressing demand for good summer school training in the institutions where actual contact with the individuals of all types and degrees of mental deficiency can be had.

We consider this law well drawn, and the policy of those who are directing the movement is well calculated to meet the situation as well as it can be done.

We shall hope to discuss this matter later, after the experiment has been tried out for awhile.

A. C. R.

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CONTENTS

Some Problems Relating to the Detection of Border- line Cases of Mental Deficiency.—By Lewis M. Terman and H. E. Knollin, Stanford University.....	3
The Interpretation of Anthropometric Measurements. —By E. A. Doll.....	16
A Preliminary Report on the Careers of Three Hun- dred Fifty Children Who Have Left Ungraded Classes.—By Elizabeth E. Farrell, B. SC.	20
Atypical Epilepsy.—By A. L. Beier, Chippewa Falls, Wisconsin.	27
A Study of the Voice among Feeble-Minded.—A Speech Syndrome.—By Walter B. Swift, A. B., S. B., M. D., Boston, Mass., Instructor in Neuro- pathology, Tufts Medical College, Boston State Hospital Psychopathic Department.	40
Minutes.	45
Treasurer's Report.....	48
News and Notes.....	49
Form Board Speed as Diagnostic Age Tests.—By E. A. Doll, Assistant Psychologist, The Train- ing School, Vineland, N. J.....	53
Some Further Developments in a Pediatric Depart- ment of a University Medical School.—By William Palmer Lucas, M. D., Physician in Chief of the Children's Department, University of California Medical School.	63
The School as a Factor in the Mental Hygiene of Rural Communities.—By Taliaferro Clark, Sur- geon, U. S. Public Health Service.	69
How to Fill the Gap Between the Special Classes and Institutions.—By Ada M. Fitts, Supervisor of Special Classes, Boston, Mass.....	78
The Borderlines of Mental Deficiency.—By Samuel C. Kohs, Psychologist, Chicago House of Cor- rection.	88

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SOME PROBLEMS RELATING TO THE DETECTION OF BORDERLINE CASES OF MENTAL DEFICIENCY.¹

LEWIS M. TERMAN AND H. E. KNOLLIN,

Stanford University.

There are few problems in clinical psychology more important than those relating to the correct diagnosis of high-grade and borderline cases of mental deficiency. When the methods employed for this purpose are unsatisfactory two dangers are involved: (1) Examiners who are not sufficiently cautious are likely to overestimate the amount and degree of mental deficiency present in a group of individuals who have been tested; (2) examiners who are over-conservative are in danger of falling into the opposite error.

Mistakes made in the diagnosis of borderline cases are particularly regrettable. For ordinary purposes it does not greatly matter if a child who is only slightly less intelligent than the average child is labeled by the tests as slightly above average, or vice versa; nor does it matter so much if a child who is only moderately superior is stamped as very superior. Even the diagnosis of a high-grade imbecile as a low-grade moron would ordinarily have no serious consequences; and as for the various levels of idiocy, the average person has little interest in the distinctions involved. With the borderline child the case is quite different. If such a child is rated as "not feeble-minded" the parents ordinarily interpret this to justify the expectation of a fairly normal development. On the other hand, if a child is rated as feeble-minded, who although dull,

¹A paper presented before the meeting of the American Association for the Study of the Feeble-Minded, Berkeley, August 2, 1915.

has nevertheless a degree of intelligence which will enable him to live a fairly normal social and industrial life, the mistaken diagnosis may result in depriving such child of the very opportunities necessary for his fullest development. Besides, it must be very annoying to the physician or psychologist when a mental diagnosis is not borne out by the child's later development.

As all are now willing to admit, the greatest advance ever made in the direction of accurate determination of the intelligence level is to be credited to the genius of Alfred Binet. His age-grade method of measuring intelligence merits all the fame it has won or is likely to win. More than any other one thing, it is responsible for the revolution which is taking place in our attitude toward the problems related to mental deficiency, and it is possible that in the near future its influence upon the educational treatment of normal children will be hardly less epoch-making.

But as Binet himself often emphasized, the scale as he left it is but a rough approximation to the ideal. The numerous investigations which have been made with it agree in showing that it has two serious faults: (1) It is not equally difficult at the various age levels, and (2) its upper range is so limited that it fails to differentiate satisfactorily the levels of intelligence above eleven years. The latter fault makes it impossible to distinguish the highest-grade adult defectives from borderliners or dull normals, and as a result, some of the tests which have been made of adults have led to exaggerated statements as to the relation of mental deficiency to crime, unemployment, prostitution, etc.

The other fault, namely, the unequal accuracy of the scale at different levels, has greatly complicated the study of mental growth. Practically all the data agree in showing that at the earlier age levels the scale is too easy, that at the upper end it is too difficult, and that it is tolerably accurate only in the middle range of about eight to ten years. Our data show that the inaccuracy is large enough to cause high-grade feeble-minded children of five or six years to test well above the borderline of mental deficiency and to cause older children who are well within the limits of normality to test as morons.

When such a scale is used to follow the growth of an individual child the results are sometimes very confusing. The child at five, for example, may show an intelligence quotient of 85 or 90; when re-tested at nine his intelligence quotient may be only 75, while by fourteen it may have fallen to 65 or even 60. By the first test the child would be rated as dull

but probably not feeble-minded; by the second as probably a high-grade moron, and by the third as a low-grade moron. Findings of this kind have led some to believe that the mental development of the feeble-minded is subject to certain unpredictable fluctuations, and particularly that it is likely to slow down at a more rapid rate than the intelligence quotient found at the age of five or six years would lead one to expect.

Whatever the facts may be, it is at least evident that before we can arrive at any definite knowledge about the rate of mental development either in feeble-minded or normal children it will be necessary to have an intelligence scale which is reasonably accurate from childhood to at least as far as adolescence. Until then there will be no solid basis for prediction or for educational advice.

Considerations of this kind led one of us to undertake some years ago a revision of the Binet tests. In working toward this end five lines of possible contribution were kept in mind: (1) A more correct placing of the tests; (2) The elimination of unsatisfactory tests; (3) The addition of enough new tests to give at least six altogether for each age group; (4) The extension of the scale upward; and (5) Standardization of the procedure.

The sources of data may be grouped as follows:

(1) 400 normal children tested by Childs and Terman in 1910-1911;

(2) 300 normal children tested by Miss Helen Trost, Dr. Charles Waddle and Terman in 1911-1912;

(3) 1,000 non-selected children tested in 1914 by Miss Grace Lyman, Miss Neva Galbreath, Mr. Wilford Talbert, Dr. George Ordahl, and Dr. Louise Ellison Ordahl;

(4) 40 high school pupils tested by Terman, 1914-1915;

(5) 30 business men, ordinarily successful but little educated, tested by H. E. Knollin and Richard Zeidler, 1915;

(6) 150 "migrating unemployed" men tested by Mr. Knollin, 1915;

(7) Over 150 male delinquents, sixteen to twenty-one years of age, tested by Mr. J. H. Williams, 1914-1915;

(8) A small number of miscellaneous tests of college students and ordinary laboring men.

Of the above, it was the tests of 1,000 non-selected children which gave the most reliable data for the revision of the scale up to the fourteen year level. The extension and standardization of the scale beyond this point were based chiefly upon the tests of adults. The data from business men and high school students were especially valuable for this purpose.

It is unnecessary to enter here into the methods of collecting and utilizing the above mentioned data for a revision of the scale.² The following points, however, should be mentioned: (1) Special attention was given, in the tests of 1,000 children, to securing subjects representative of the various ages; (2) The children were even-aged children, within two months of a birthday; (3) The examiners were trained and competent; (4) The procedure of the various examiners was as nearly uniform as it was possible to make it, and in the further interests of uniformity all the records were scored by one person (Terman).

The guiding principle in making the revision was to secure an arrangement of the tests which would cause the median mental age of the children at each age group, to coincide with the median chronological age of the children of that group. Three successive drafts of the revision were made and tried out by this criterion before one was found with the desired degree of accuracy at all age levels. As finally left, the scale gives a median intelligence quotient closely approximating 100 for the children of each age. The revision contains six regular tests and from one to three alternate tests in each year from three to ten, eight at year twelve, six at fourteen, and six in each of two higher groups which are named, in order, "average adult" and "superior adult." Enough new tests were included in the trial series to give the revision, after the necessary eliminations had been made, some thirty-six tests more than are found in the Binet series of 1911.

The extension of the scale in the upper range is such that ordinarily intelligent adults, even when practically uneducated, actually test up to what is called the "average adult" level. Adults whose intelligence is known from other sources to be superior are found to test up to the "superior adult" level, and this holds true whether the subjects in question are well-educated or practically unschooled. One-half the business men test at "average adult" and approximately a fourth on either side. Only one fell dangerously near the borderline. The distribution of high school students is approximately the same. College students all range from "average adult" to "superior adult." Knollin's "migrating unemployed," who were temporary guests at Palo Alto's "Hotel de Hobo," tested by the revision from seven year intelligence to the superior

²The results of the investigation, including the revised scale and directions for its use, will appear shortly in a monograph by Terman, Ordahl, Lyman, Galbreath and Talbert.

adult level. Between a third and a fourth fell to twelve or below. Those who tested at "average adult" or "superior adult" had practically all held responsible jobs or positions, although few had had more than a common school education. Of Williams' juvenile delinquents somewhat more than one-fourth are rated by the scale as feeble-minded, and almost another fourth as borderline or near-borderline cases.

It is well known that in testing adults the Binet scale, by the revisions in general use, gives results widely at variance with these. For example, in a large number of investigations from fifty to seventy-five per cent. of adult and juvenile delinquents have been rated as feeble-minded. Even high school students and ordinary normal adults have difficulty in earning a mental age high enough to land them safely over the borderline of mental deficiency, and the median fourteen year old child in the public schools tests little if at all beyond the level of twelve years.

As already stated, the Stanford revision was revised and re-revised until the median mental age was made to coincide with the median chronological age for non-selected children of each age level from four to fourteen, and until ordinary men and women were caused to test approximately at what is called "average adult." The terms "fourteen year" intelligence, "average adult" intelligence, etc., are thus given a fairly definite and somewhat literal meaning.

Such being the case, it is interesting to take the results secured by the use of the Stanford revision with a given group of individuals and to score the records so as to show how the mental ages found differ from those which would have resulted from the use of other versions of the Binet scale. The comparison is especially interesting when borderline cases are involved.

We have made such a comparison in the case of 104 adults who tested by the Stanford revision between twelve and fourteen years, that is, above the usually accepted limit of mental deficiency and distinctly below the average for normal adults. The version of the Binet scale used for the comparison was that of Goddard.

Before setting forth the results it is necessary to mention one difficulty encountered in translating the scores. Although the scale as Binet left it, and also as revised by Goddard, contains two higher groups of tests called respectively "fifteen year" and "adult," we are not informed as to how these tests are to be evaluated in calculating mental ages.

Since there are no tests between year twelve and year fifteen, it might seem logical to give three-fifths of a year credit for each test in the fifteen year group. This, however, seems a little high. As for the "adult" tests, we have no idea what value they were meant to have in calculating mental age. Dr. Goddard has informed us that in the Vineland work the Binet "fifteen year" and "adult" tests are omitted altogether. It was finally decided to rescore our data in two ways, so as to show the mental ages which would result (1) when the Binet "fifteen year" and "adult" tests were ignored and (2) when a value of six months was given to each test in these groups.

It is interesting to see what happens when our mental ages of twelve to fourteen years are translated in this way. By the Stanford revision the median is a little above thirteen years, by the Binet scale it is a little below twelve years when the "fifteen year" and "adult" tests are taken into account, and approximately eleven when these are ignored. That is, of 104 adult individuals whose mental level actually equals or exceeds that of the median twelve year school child, and who are therefore not feeble-minded according to the standard in most general use, either 50 per cent. or 100 per cent. would be rated feeble-minded by the Binet-Goddard series; 50 per cent. if we count the two highest groups of tests, 100 per cent. if these are ignored. It is evident that by either method of reckoning the Goddard revision fails to do justice to those older children or adults who belong at or just above the borderline of mental deficiency. In 10 per cent. of the cases the displacement downward amounts to as much as three years by Goddard's method of reckoning.

We next compared the ratings secured by the two scales with non-selected younger children. This was done for our 54 five year olds and 117 six year olds. By the Stanford revision the I Q of the five year olds ranged from 77 to 135 with a median of 102. By the Goddard revision the range was from 93 to 171, with a median of 117.5. This is a difference of about ten months between the two revisions at this point. With six year olds the difference in median I Q is less, but still rather large, namely 13.5.

Although the too great ease of the Binet scale at the lower end has been very generally admitted, the amount and seriousness of the error have received little attention. This is due to the custom of expressing intelligence status in terms of mental age, instead of in terms of the ratio between mental age and chronological age. An error in the scale of ten months

does not at first thought appear especially significant. We forget that an error of ten months at age five is equivalent to an error of twenty months at age ten, or to two and a half years at age 15. It means that the five year old borderline case with a true intelligence quotient of 75 or 80 would be given by the Binet-Goddard scale an intelligence quotient of 90 or 95; that is, the child would be rated as only a little below the average in intelligence.

In like manner, the young child of really average intelligence, is given an intelligence quotient of 115 or 120, while the child who is really superior, who has, let us say, a true intelligence quotient of 140, is lifted by the error to 155, 160 or even higher. We took 14 very superior children of four, five and six years and compared their I Q's by the two scales. By the Stanford revision they ranged from 120 to 142, by the Binet scale from 127 to 171. That the latter figures can not correctly represent the facts is evident if we remember that at the levels where its accuracy is admitted the Binet scale almost never yields an I Q higher than 140. Among our 1,000 children there were only 12 I Q's higher than 130, and none higher than 144.

In a similar manner we have compared the ratings secured by the two scales in the case of 100 high-grade feeble-minded and borderline school children of different ages. About a third of these were the lowest of the 1,000 non-selected cases; the remainder were enrolled in special classes for backward children or were on the point of being so segregated. A few were miscellaneous cases who had been brought to the clinic for examination because of suspected deficiency. Some of the results of this comparison are shown in the following table:

Chrono- logical Age	No. Cases	Median I Q Stanford	Range of I Q Stanford	Median I Q Binet	Range of I Q Binet
5	3	77	77-79	95	88-98
6	5	77	70-81	91	76-94
7	2	74	72-76	80..5	75-86
8	5	74	69-79	81	73-86
9	12	76	69-79	80	71-92
10	8	72	65-78	81	70-83
11	4	76	73-81	83	75-95
12	9	75	70-80	76	65-81
13	14	77	70-81	74	68-82
14	16	78	68-86	72	65-81
15	22	79..5	70-84	71	60-75
Total	100				

COMPARISON OF STANFORD AND BINET SERIES AS REGARDS
I Q RANGE AND I Q MEDIANS FOR 100 FEEBLE-MINDED
AND BORDERLINE CHILDREN OF DIFFERENT AGES.

The table shows that our borderline cases of five years are rated only a little below average by the Binet scale, that the error diminishes gradually until we come to the borderliners of eleven and twelve years chronological age, and that thereafter the disagreement between the two scales is in the opposite direction. We will now examine some of the individual cases who appear in the above table.

Of the five-year-olds, one tests at 78 Stanford and at 95 Binet. This child has been diagnosed even by a physician as probably feeble-minded.

In the six-year-olds, one tests at 77 Stanford and at 91 Binet. The child has been in the first grade for five months, but according to the testimony of the teacher had learned nothing.

Of the eight-year-olds, one tests at 74 Stanford and 86 Binet. This child had attended school two whole terms and was still unable to read in the first reader.

With the nine-year-old cases there were no disagreements of more than eight points in terms of I Q.

Of the ten year children, one tests at 77 Stanford and at 90 Binet. This child, the son of a college professor, has been repeatedly tested by us during the last five years and always with approximately the same result. He is unable to do second grade work at the age of ten years, and is unquestionably feeble-minded. Yet, judged by earlier versions of the Binet scale his intelligence would have to be rated as only a little below the average for a child of his age.

The next marked disagreement is found with the fourteen year group. Here there are four interesting cases. One is a Portugese boy whom we have tested annually for the last five years. The Stanford revision rates him at 81, the Binet series at 70. There can be no question about his dullness. Although fourteen years of age, he is able to do the work of the fifth grade only moderately well. However, the child in question passes everywhere as perfectly normal except in ability to do the more difficult work. The case is a fairly good example of racial dullness without feeble-mindedness in the ordinary sense. Incidentally, our experience shows that the average child of Mexican or half-breed Indian parentage falls somewhere near this level, though there are of course occasional exceptions.

Other children of the fourteen year group test by the two scales as follows:

80 Stanford	75 Binet
87 "	77 "
86 "	75 "

At age fifteen the disagreements become very marked indeed, as illustrated by the following cases:

84 Stanford	70 Binet
83 "	69 "
84 "	72 "
83 "	66 "

82	"	69	"
85	"	70	"
81	"	68	"
83	"	72	"
83	"	70	" etc.

The question may of course be raised whether erroneous rating by the Stanford revision may not itself be the main cause of the discrepancy. It would of course be absurd to claim for our revision absolute accuracy. All we can say is that in testing as nearly representative children as we were able to get, the scale gives at each age level a median I Q closely approximating 100. We do not know of any other standard by which the accuracy of a scale can be as reliably judged.

One method of checking up the validity of an intelligence test is to compare its result with the child's school success. One of us has just completed a rather detailed comparison of this kind for 500 children, working out correlations between I Q and quality of school work as judged by the teacher, between I Q and mental age, and finally between I Q and the teachers' grouping of the children according to intelligence. The correlations are in all cases fairly high but by no means perfect. By the Pearson formula they range between 43 and 48.

In all the comparisons there were marked disagreements, which, if taken at their face value, would suggest a good deal of skepticism as to the validity of the test method. In the comparison between I Q and school work, for example, ten per cent. of the cases showed a two-step disagreement. By this is meant, for example, that a child whose I Q would lead us to expect "very inferior" school success is ranked by the teacher as doing school work of "average" quality, or vice versa, the five grades being "very inferior," "inferior," "average," "superior" and "very superior." As a matter of fact, out of 30 children with an I Q below 80, 8 were actually rated by the teacher as doing "average" school work.

If it is really true that children who test near or even over the borderline of mental deficiency are capable of doing average school work the fact ought to be known. We have accordingly sifted our data for any evidence they might contain on this question. Among the entire 500 children there are 26 whose school work is at least two grades better than the I Q would seem to warrant. On looking up the facts about these we find that 19 of them are by chronological age over-age for

their grade, 10 of the 19 are chronologically from two to four years over-age. Included among these are all of the borderline cases above mentioned. Of course, nothing else is needed to explain the disagreement in these cases. We know it to be true that a ten-year-old child with a mental age of eight years (I Q 80) is just about able to do ordinary passing work in the second school grade, or that a thirteen-year-old with a mental age of ten years (I Q 77) can about manage to get along tolerably well in the third or fourth grade. Practically all of the other serious disagreements could be accounted for in one way or another without justifying the slightest question as to the validity of the test method.

When the grade distribution of the 500 children was compared with their I Q's, astonishing disagreements were again found. Nine-year intelligence, for example, is found all the way from grade I to grade VII, inclusive; ten-year intelligence from grade II to grade VII, etc. Case by case study of these disagreements between I Q and school grading demonstrated quite conclusively that practically all were due to the tendency of schools to promote children by chronological age. Some children, of course, are allowed to become retarded, but these over-age children are nearly all accelerated if judged by mental age. Indeed, the more retarded the child, the stronger is the presumption that he is not as retarded as he ought to be. All our borderline and feeble-minded cases above eight years, except two, were over-age for their grade, but at the same time nearly all were apparently above the grade where they belonged by mental age. According to our data, the child who tests from 70 to 79 by the Stanford revision never does satisfactory school work in the grade where he belongs. After the age of eight or nine years he is usually doing "very inferior" to "average" work in a grade two to four years below his age.

A comparison of the I Q with the teachers' estimates is still more interesting. Although the coefficient of correlation by the Pearson formula is .48 for the entire 500 children, there were again individual cases of striking disagreement. No less than 24 children were ranked by their teachers two steps higher than the intelligence test would lead us to expect. On looking up these cases it was found that nearly all were over-age for their grade. It is obviously the teachers who are at fault, not the test. They have judged the intelligence of these over-age borderline children by too low a standard. If they are capable of doing passing well the intellectual tasks set before them they are ranked as "average" in intelligence. The

teacher does not stop to consider what tasks a normal child of that age ought to be doing.

The vitiating effect on the teacher's judgment of a child's intelligence due to neglect of over-ageness and under-ageness is easily shown by computing the correlation between I Q and teachers' rankings separately for those children who are in the grade where they belong by chronological age. When this is done the coefficient of correlation rises from .48 to .65.

An interesting way to expose the method by which teachers judge intelligence is to take their classifications of the same children according to school work and also according to intelligence and compute the correlation between their two classifications. We have done this for the 500 children and find a correlation of .82!

This is so high as to be amusing. It would probably have been still higher if the supplementary form filled out by the teachers had not contained the specific instruction to estimate the intelligence of a child "in comparison with other children of the same age." In spite of this injunction they have obviously ignored age differences and estimated intelligence chiefly on the quality of the child's school work in the grade where he happened to be. They have failed to realize that quality of school work is no index of intelligence unless age is taken into account.

Our experience in testing children for segregation in special classes has time and again brought this peculiar fallacy of teachers to our attention. We have often found one or more feeble-minded children in a class after the teacher had confidently asserted that there was not a single exceptionally dull child present. In every case where there has been opportunity to follow the later school progress of such a child the accuracy of the test has been fully confirmed. The comparison of I Q with school success not only fails to justify the suspicion entertained by some as to the validity of the Binet method with borderline cases but these very disagreements, when analyzed, are the best possible proof of the accuracy and usefulness of the revised scale. In not a single borderline case have we found anything in the child's school history to belie the intelligence quotient secured by the Stanford revision.

Summary.

1. The earlier revisions of the Binet scale are unfair to dull-normal and borderline adults, causing these to test much too low. The result is an overestimation of the amount of

feeble-mindedness among criminals, delinquents, unemployed, prostitutes, etc.

2. Error in the other direction at the lower end of the scale causes nearly all of the borderline cases of four to six years chronological age to be rated as normal.

THE INTERPRETATION OF ANTHROPOMETRIC MEASUREMENTS¹

E. A. DOLL.

I suppose that the measurement of height, weight, and strength of grip forms a part of the examination of practically every person suspected of being feeble-minded. Even where no formal examination is made the person who passes judgment makes at least a cursory appraisal of the physical development and tone of the suspect. This paper is presented to show how in a few moments these measurements can be taken with accuracy, and how they may be interpreted with such a descriptive objectivity that they form a desirable if not essential part of every examination.

About fifteen years ago the Department of Child-Study of the Chicago Public Schools began to study children through objective clinical measurements. Dr. Christopher at that time showed a relation between school capacity and physical development. Smedley, who succeeded him, continued these measurements and extended them. His report for the year 1900-1901 contains age and sex tables of physical and psychophysical measurements, which, although open to certain criticisms, are of great service in the examination of children. The measurements with which we are concerned in this paper relate to standing height, sitting height, weight, strength of right and left grip, and vital capacity. These six measurements were made upon hundreds of school children of both sexes for ages 4 to 19. They were then arranged into percentile tables in the following manner: The measurements were recorded separately on cards. These cards were then separated for the sexes, and for the different ages. The cards for each measurement for the children of a given age and sex were arranged in order of magnitude of the measurements. These cards were then divided into 10 equal groups and the measurement on the first card in each group recorded as representing the percentile indicated by the number of the group. Thus the first card became the zero percentile, the tenth card the 10 percentile, and so on, with the last card giving the 100 percentile. Tables have thus been established which are of great value for the study of individual children. These tables are

¹A paper presented before the meeting of the American Association for the Study of the Feeble-Minded, Berkeley, August 2, 1915.

available in the Child Study Report No. 3 of the Chicago Public Schools.

Soon after the Research Laboratory was established at Vineland, these tables were used as standard norms with which to compare measurements of feeble-minded children. It was soon discovered that the feeble-minded were below normal in height and weight and that the degree of subnormality was associated with the degree of mental defect. It was also discovered that in strength of grip and in vital capacity the feeble-minded were more subnormal than in height and weight, and that this subnormality was even more closely related to mental grade. It was not long before it was clear that with the feeble-minded these six measurements bore relations to each other and to the norms, which were quite characteristically different from the results with normal children, so that when plotted graphically there were typical differences between the normal and the feeble-minded.

Taking up Dr. Goddard's work at this point and following some valuable suggestions from Mr. S. C. Kohs, I have made an exhaustive statistical study of the measurements on several hundred cases of feeble-minded children at the Training School. The results of this study are presented in a monograph not yet published, 'copiously illustrated with tables and graphs and statistical determination of limits of error. It would be impossible to present these here in detail. In this brief paper I can present only the general purpose and treatment.

The measurements of height and weight are made with the ordinary metric stadiometer and scales. Strength of grip is determined by use of the Smedley dynamometer, and vital capacity is measured with a wet spirometer. A reasonable amount of care and judgment must be used in taking the measurements, since often the percentile tables detect very slight variations. These measurements are then compared with the percentile norms for the child's sex and its age to its last birthday. One simply finds at what percentile each obtained measurement compares with the normal measurements. If the obtained measurement comes between two percentile measurements a simple estimation will give the desired result. For ages over 19 we use the 19 year tables. If the given measurement falls outside the 0 or 100 percentiles, a satisfactory result will be obtained by assuming that the difference between

This monograph will appear shortly under the title "Anthropometry as an Aid to Mental Diagnosis," by E. A. Doll. Publications of the Research Department, No. 8, The Training School at Vineland, N. J.

the 0 and 10 percentiles or between the 90 and 100 percentiles in a given table operates as a constant for percentiles below 0 or above 100.

From these comparisons it is apparent how the child compares with normal children of his age and sex in each measurement. If, now, a graph is made of the relation of these measurements to each other we have an anthropometric curve. Further, if we compute the arithmetic average of the percentile of height and weight, and the average for grips and vital capacity, we have a significant ratio which is highly valuable in the diagnosis of a case. The typical normal curve is theoretically a straight or zig-zag horizontal line between the 40 and 60 percentiles. In practice, however, the Smedley norms are somewhat low because of the presence of some backward and feeble-minded cases in the unselected normal groups, so that normals are ordinarily above the 50 percentile and in grip and vital capacity farther above. If we draw a straight line to represent the curve, its slope is either horizontal or upward. This slope is obtained by plotting the height and weight average in the space for sitting height and the grips and the vital capacity in the space for left grip and connecting these percentile averages with a straight line. Individual normal curves are apt to vary considerably, but have definitely distinct characteristics.

The typical feeble-minded curve is rather more constant in its relations. In the first place the physical average (height and weight) is below or close to 50 and the psycho-physical average (grips and vital capacity) is noticeably lower than the physical, thus giving a curve of downward slope as opposed to the typically normal upward slope. The measurements also have significant specific relations to each other. Sitting height is below standing height, but weight is above standing height. Weight approximates the normal more closely than any other measurement. Right grip is below height and weight, left grip is higher than right and the vital capacity is lowest of all. In all these respects you will note that experiment confirms previous observation wherever such measurements have been obtainable. A group of Mongolians proved to be characteristically short and heavy and also long waisted (or short legged) but with the other feeble-minded characteristics plainly apparent. A group of feeble-minded cases with complications of insanity showed the general feeble-minded characteristics but not their specific relations.

In using these measurements and this method it must not be expected that every case presents all of the characteristics described. Some normal curves slope down and a few feeble-minded curves slope up. In such cases one depends upon the physical and psycho-physical averages and also upon the specific relations of the measurements. I cannot take the space to detail these items. They are objective and definite but one must use experience and judgment in evaluating them. In general the diagnostic value of the downward slope of the curve no longer holds if the psycho-physical average is above 50.

The position of the curve on the graph must be considered as well as the slope. I stated previously that the ratio of the physical average to the psycho-physical average is of great importance. This ratio should not be reduced to a decimal but should be retained as an absolute fraction. If the numerator of this fraction (the physical average) exceeds the denominator (the psycho-physical average) the curve is of course downward. If the reverse is true the slope is upward. Remembering that 50 is the normal standard and that degree of subnormality is correlated with degree of mental defect it is obvious that the absolute value of this ratio, or the terms thereof, is of value in determining grade of feeble-mindedness as well as feeble-mindedness itself. With idiots the average ratio is 25-20, with imbeciles, 35-5, and with morons, 48-25. In other words, the steepness of slope and its position on the graph is of value not only in detecting feeble-mindedness but also in classifying the feeble-minded.

But what is the reliability of this method? In the experiment referred to, 93 per cent. of feeble-minded cases showed feeble-minded anthropometric curves; 67 per cent. of a group of 21 potential feeble-minded, children who are too young to be diagnosed by means of the three years retardation formula, showed these same characteristics; 100 per cent. of a small group of normal children showed the typical normal characteristics with an average ratio of 75-80; and 83 per cent. of a group of Westchester Normal School students showed the normal characteristics with a ratio of 37-54. With such claim to reliability and considering the simplicity of obtaining and interpreting these measurements it may not be far from right to conclude that they are of great value in supporting diagnoses arrived at by other methods or in supplanting more difficult and time-consuming methods when speed is necessary or large numbers of cases must be classified.

A PRELIMINARY REPORT ON THE CAREERS OF THREE HUNDRED FIFTY CHILDREN WHO HAVE LEFT UNGRADED CLASSES¹

BY ELIZABETH E. FARRELL, B. SC.

Problem—The problem, upon which this study seeks to throw some light, is concerned with the careers of children who have left ungraded classes at sixteen years of age. All children in such classes, in the public schools of New York City, have been certified as mentally defective by duly qualified psychologists and physicians, therefore the children whose careers are here presented have been certified as mental defectives. The school attendance law in New York State operates until a child is sixteen years of age, unless he has satisfactorily completed the first half of the seventh year of the school course at his fourteenth birthday or subsequent thereto. This required school attainment is obviously impossible for ungraded class children; they would therefore, be obliged to attend until their sixteenth birthday if it were not for the fact that there is no legal authority, at present, for compelling the school attendance of children who are mentally defective. The need for this authority is not yet felt to any appreciable degree. The classes are small, the teachers are interested in the children, and the result is that the children do attend school. The average attendance in the ungraded classes in New York is very high.

Scope—Reports on the careers of 600 former ungraded class children who have been out of school from one to eight years are available. The first were discharged in 1907, the latest in 1914. The territory covered includes that of the five boroughs of the greater city.

Of the above mentioned records of 600 children, tabulations of 350 are completed to a degree which warrants this presentation.

Method—The material here presented was gathered by ungraded class teachers, visiting teachers and by settlement and other social workers. It was secured by; (1) visits to the children's home; (2) visits to the employer; visits of parents to the school.

¹Read at the meeting of the American Association for the Study of the Feeble-Minded, Berkeley, California, August, 1915.

Distribution by Boroughs—The records here presented are distributed throughout the boroughs as follows:

	Total
Manhattan	154
The Bronx	43
Brooklyn	122
Queens	22
Richmond	9
Total	350

Distribution by Sex—The records now tabulated show that one girl was discharged for every two boys. The distribution by sex is as follows.

Girls	123
Boys	227
Total	350

Reason for Discharge From School—

	Girls	Boys
16 years of age or over	113	210
By order of the Court	1	4
Other reasons	9	13
Total	123	227
Grand Total	350	

Percentages Based on Above—

- A—Children discharged as 16 years of age or over 92. per cent
 B—Children discharged by order of the Court..... 1.2 per cent
 C—Children discharged for other reasons..... 6. per cent

Under B are included children removed by the Court (improper guardianship, inability to establish age, etc).

Under C are included those whose parents made other provision for them, Private Schools, Parochial Schools, to be tutored, etc.

Present Status—The actual status of these children at the time of the last visit in June, 1915, is as follows:

	Girls	Boys	Total
1. Cared for at home.....	54	32	86
2. Employed for wages	50	142	192
3. Employable, but out of work at present	7	24	31
4. In Penal Institutions		3	3
5. In Institutions for feeble-minded..	3	10	13

6. In other institutions	2	3	5
7. Unknown	2	5	7
8. Dead	3	7	10
9. Married	3		3
Total	124	226	350

Grand Total350

For the purpose of this presentation those employed for wages are put in contra distinction to those cared for at home. It is not to be understood, however, that all of those cared for at home are without economic value. Reports on this group throw the following light on this: "Keeps house with mother;" "Works in father's candy store;" "Assists mother in making artificial flowers at home;" "Pulls bastings in father's shop," etc. Those employed for wages represent 64 per cent. of all cases tabulated. Of this percentage less than 9 per cent. were out of employment at the time the report was made. In this connection it is interesting to note that one boy, the only known mental defective in his family, is said to have been the only wage earner during the prolonged period of unemployment during the last winter.

By "other institutions" is meant hospitals, homes for incurables, sanatorium for tuberculosis, etc.

Of the one per cent. reported as married, one child, now dead, was the only birth reported. One woman has been deserted by her husband.

Occupations—The occupations in which these children are employed group themselves into four large divisions: trades, factories, stores and miscellaneous. The most interesting one is the trades. In this group, six are reported as members of the union organized in connection with the trade in which each is employed.

This tabulation seems to indicate that a small minority of the children are engaged in street trades and in peddling.

OCCUPATIONS NO. EMPLOYED

Misc.—

Housework	16
Errand boy	13
Driver	12
Newsboy	4
Peddler	4
Nurse maids	4
Farm hands	4

Maids	2
Market	2
Mail carriers (?).....	2
Elect. con.	1
Elevator boy	1
Navy yard	1
Gas fixtures	1
Laundry	2
Caddy	1
Mov. Pictures	2
Odd Jobs	4
All Others	6
Unknown	7

Total 89

Factories—

Biscuit	1
Clothing	8
Ice cream	1
Harness	1
Candy	1
Paper box	1
Lace	1
Necktie	2
Shoe	1
Sugar	1
Macaroni	1
Mattress	1
Feed bag	1
Handkerchiefs	2
Silk Mills	5
Jute	1
Hardware	2
Iron	1
All Others	7

Total 39

Stores—

Candy	1
Feathers	2
Grocery	7
Stationery	2

Total 12

Fruit	2
Butcher	2
Bakery	1
Dry Goods	3
Drugs	1
All Others	13

Total 22

Trades—

Cabinet-Maker (helper)	3
Printer (helper)	5
Machinist	2
Cabinet repair work	2
Plumber	1
Dressmaker	2
Carpenter (union)	2
Bricklayer (union)	1
Cap Maker (union)	1
Tin Smith (union)	3
Blacksmith	1
Tailor	2
Metal Worker	1
Mason	2

Total 28

Unemployed—

At Home	86
Unknown	9
Out of work	31
Institutions	21
Dead	10
Married	3

Total 160

WEEKLY WAGE DISTRIBUTION.

\$ 1 to 1.99.....	2
2 to 2.99.....	4
3 to 3.99.....	13
4 to 4.99.....	26
5 to 5.99.....	29
6 to 6.99.....	22
7 to 7.99.....	18
8 to 8.99.....	7
9 to 9.99.....	6
10 to 10.99.....	—

11 to 11.99.....	1
12 to 12.99.....	2
18	1
26.40	3
30	1
Unknown	57
Out of employment	31

OCCUPATIONS AND WEEKLY WAGES OF 30 WAGE-EARNING GIRLS DISCHARGED FROM UNGRADED CLASSES.

NAME	AGE	OCCUPATION	Weekly Wage
G. H.....	19.....	Milliner's asst.	\$6.00
G. M.....	19.....	Artificial flowers	3.50
S. P.....	19.....	Milliner's asst.	5.00
E. S.....	19.....	Artificial flowers.....	6.00
H. H.....	17.....	Envelope factory	5.00
M. M.....	18.....	Candy factory	4.50
L. M.....	17.....	Factory ²	5.25
R. B.....	19.....	Nurse maid	\$1.00 and bd.
E. D.....	17.....	Packer	4.50
J. M.....	20.....	Feather maker	5.00
R. V.....	18.....	Factory ²	7.00
E. L.....	22.....	Button maker	5.00
R. S.....	21.....	Paper box maker	5.00
L. S.....	21.....	Saleswoman	5.00
R. A.....	17.....	Shirt-waist factory	4.50
R. G.....	18.....	Sewing dresses	4.00
M. H.....	18.....	Dressmaking	4.00
V. E.....	17.....	Errand girl (Milliner)....	4.00
A. S.....	17.....	Working ²	4.00
M. G.....	17.....	Cork factory	4.37
J. G.....	17.....	Factory ²	4.00
E. Y.....	18.....	Shirt-waist shop	4.00
E. S.....	17.....	Floor girl	2.50
N. D.....	19.....	Laundry	5.00
C. F.....	19.....	Paraffin works	4.00
C. H.....	21.....	Working ²	5.00
E. E.....	17.....	Silk factory	4.00
M. H.....	17.....	Dressmaker	3.00
L. Y.....	18.....	Suit house	4.00
S. L.....	17.....	Packer (Dept. Store)	4.50

²Type of factory not reported.

³Occupation not reported.

Summary—This study of the careers of 350 children who have left ungraded classes at sixteen years of age shows that:

The ratio of girls to boys is 1 to 2.

92 per cent. of the children attended school until their sixteenth birthday.

1 per cent. discharged by order of the court.

6 per cent. were discharged for other reasons.

25 per cent. have never worked out of the home. 65 per cent. of this number are girls; 35 per cent. of this number are boys.

64 per cent. employable out of their own homes, and for wages. 9 per cent. of this number were out of employment at the time of the investigation.

1 per cent. were in penal institutions. These were boys.

4 per cent. were in institutions for the feeble-minded. Less than 1 per cent. of these were girls.

1½ per cent. were in other institutions.

2 per cent. were unknown.

3 per cent. are dead.

Less than 1 per cent. are married. These are girls.

Conclusion—This study will be continued for the purpose of ascertaining the ability of the worker to stick to his job; his ability to seek and to attain promotion in his field of work, and to make a comparative study of the ungraded class product with his more fortunate brother from the regular school course.

ATYPICAL EPILEPSY¹

BY A. L. BEIER

Chippewa Falls, Wisconsin.

A consideration of phenomena occurring in association with epilepsy needs no fatiguing, apologetic preamble. As we all know, despite our well-formulated and deceptive theories, it is a condition that is still enshrouded in the deepest mystery. So far but little light has been shed upon its ultimate causation, and, the *modus operandi* of the etiological factors frequently found in association with it, continues to be problematical. The field of research offered in a study of epilepsy is interesting, fascinating, baffling and illimitable, and presents to the observer an enigma most difficult of solution. Speculation as to the origin of the condition is still indulged in—research work is being extensively carried on, but little truly definite is known.

It is not my purpose to render a tedious and protracted discussion, or, to deeply invade the field of study that epileptic phenomena presents to us. I will, however, attempt to restrict myself to a somewhat cursory consideration of the atypical forms which we occasionally meet.

Generally speaking, one might consider epilepsy to be a psycho-neural disturbance, recurring paroxysmally, varying in duration and intensity, manifested in the majority of instances by severe cerebro-spinal reactions (convulsions), in others mainly by cerebral disturbances, and always characterized by ultra volitional motor activities, with an associated partial or complete temporary destruction of the natural inhibitory powers that normal consciousness exerts over the cerebral and cerebro-spinal systems; the development of the seizures being usually sudden and attended by either a gradual or rapid resumption of normal activity, with, however, a definite tendency to the production of dementia or grave mental deterioration.

This definition may be somewhat arbitrary and filled with many discrepancies, but it is an attempt to embrace the classical forms of epilepsy now recognized, and will serve as a subject-matter.

¹Read at the Meeting of the American Association for the Study of the Feeble-Minded, Berkeley, California, August, 1915.

By typical epilepsy we usually mean paroxysmally recurring generalized convulsions, commonly called grand mal or major epilepsy. This form, as you know, is characterized by loss of consciousness, a fall, tonic contractions, then a rapid sequence of clonic convulsions, followed by a cessation of muscular activities, and the appearance of stertorous respiration, which, in turn, is succeeded by a period of quiescence and profound sleep. There is finally a gradual resumption of consciousness with complete amnesia of acts, performed, or occurring, during the seizure. The epileptic cry, the initial pallor and subsequent cyanosis, the appearance of frothy, blood-stained sputum, the occurrence of involuntary micturition or defecation may be considered to be secondary manifestations and are variable. The two principal features that may be observed in this type are, loss of consciousness, (which predicates a subsequent amnesia) and motor co-ordination, the loss of both being complete.

In minor epilepsy, or petit mal, we have symptoms similar to the manifestations seen in the major form. There is lost or impaired consciousness with disturbed motility, and oftentimes muscular contractions, (tonic and clonic, or both,) which however, are not severe enough to cause the subject to fall. The muscular involvement may be either general or it may be confined to a group or several groups of muscles. Amnesia may be partial or absolute.

In psychic epilepsy the seizure involves practically mental activities alone; rhythmic muscular contractions are absent, but ultra-volitional motor activities are always in evidence. This form is also called masked or larvated epilepsy. Automatic acts are commonly performed during the seizure, and, it frequently happens that the movements performed immediately preceding the seizure are repeated a number of times during the attack. The psychic manifestations vary from a mere clouding of consciousness, disorientation and hallucinations to confusion, delusions, stupor and even a state of delirium. The duration of this state may be but temporary or again, it may be protracted. As a rule complete amnesia follows. During this state the subject may react automatically to various impulses that may find their way through the channels leading to the cerebral centers, but there seems to be an apparent paralysis of the higher consciousness, the normal inhibitor of many major and minor reflex acts. It is this type that is probably the most important from the standpoint of forensic medicine. It would seem that these various types differ only in the

degree in which the psycho-motor disturbance is present. As someone suggests, the characteristics of one type seem to "dovetail" into the features of some other. In fact cases are frequently met where the different types alternate in appearance in the same individual.

There is another type that occupies a definite place in epileptic phenomena, and may be said to exist as a distinct and separate form, having a definite symptomatology. This type is known as partial, focal, or Jacksonian epilepsy, and is characterized first of all, by a certain fixity of symptoms that recur with each attack. Certain muscle groups are affected; for instance, a hand, an arm, a leg, etc., may be the only parts involved. In this condition consciousness is seldom, if ever, lost, although, as a rule, there is some little attendant mental confusion. Individuals suffering from this type of seizure are very prone to develop typical grand mal seizures.

Apart from these classical types, and within the last few years, there has occurred, what may be considered, a broadening of the scope circumscribing epileptic phenomena, so that, in the light of our present theoretical knowledge, it is difficult to understand just what conditions are, or what should be, included within the meaning of the term, epilepsy. Instead of a greater simplification, we are confronted with an increased complexity; no little confusion has been added to the subject. It is to be hoped that a new classification, based on the more recent findings, will soon be devised, as the older classification and definition has become inadequate. Viewed from the standpoint of the neuroses we are tempted to add some of these to the already extensive field included within the term, especially where such neuroses are combined with motor manifestations and psychic disturbance, and have a tendency to recur. And again, in conditions closely allied to the psychoses where ultra-volitional or involuntary muscular reactions, or motor phenomena are apt to occur, we are prone to call these epileptic or at least "epileptic equivalents." It may be that we are amply justified in our conclusions, as epilepsy presents so great a variety of phenomena that one feels at a loss to know what to include and what to exclude. That it is closely allied to insanity can readily be seen when taking into consideration the frequency with which excessive irritability, mental and moral perversions, melancholia and dementia occur. We are intimately acquainted with the connection it has with feeble-mindedness. On the other hand, we are able to see its close relationship to criminality, although according to Dr.

Healy's findings, the conditions are not found to be so intimately associated as Lombroso would have us believe. The psycho-genic convulsions, of purely emotional origin, (the hystero-epilepsies of older writers,) have been resuscitated and in a great number of instances have been analyzed and found to be due, at least in part, to "repressed affects." (L. Pierce Clark.) These are undoubtedly closely allied to the psychlamprias which C. H. Hughes states are but "epilepsias in psychic form, minus the convulsion," and which he calls "spasms of mind." Moreover, within the last few years, narcolepsy, catalepsy, somnambulism, night terrors, nightmare, pavor nocturnus and even erotic dreams have been included within the meaning of epilepsy.

Much has been written concerning "epileptic equivalents." Spratling refers to them as "fragments of epilepsy, complete in themselves." This would tend to distinctly and definitely associate them with epilepsy. It would then not be unreasonable to consider all conditions recurring paroxysmally as having the same value or meaning as true epilepsy. I do not believe that many of the various conditions described as such "equivalents" bear any definite relationship to epilepsy. True it is not uncommon to see a variety of sensory and psychic symptoms that sometimes precedes, and sometimes succeeds, epileptic seizures, that are also present in a variable degree in conditions characterized "epileptic equivalents." It is a known fact that all nervous disturbances leave behind them their "foot-prints" and these indelibly mark the tendency to recurrence. Moreover, where we have paroxysmally recurring attacks of migraine, angina pectoris, paroxysmal tachycardia, nightmare, etc., (all of which have been called "epileptic equivalents" by various writers), without a more definite and conclusive symptomatology pointing to a closer relationship with one of the classical forms of epilepsy, as described above, one would be hardly justified in the statement that these various manifestations are equivalents of epilepsy, or are in any way related to it. As someone once said, "Place the standard of intelligence high enough, and we would all be feeble-minded," so it would be possible, by broadening the definition of epilepsy sufficiently to include at least the majority of us in that already large proportion of humanity suffering from genuine epilepsy.

Although the term "epileptic equivalents" is misleading, when pertaining to certain paroxysmal disturbances that have no definite clinical, (and as far as we know, no pathological)

association with epilepsy, yet I realize that there are manifestations seen in conjunction with epileptic phenomena that would render the retention of it desirable. I believe, however, that its usage should be restricted to phenomena that in and of themselves truly replace epileptic seizures. This would then include the many bizarre, atypical, incomplete and abortive forms that we so frequently meet.

As suggested heretofore, a wide variation of psychic and motor phenomena is encountered in all the standard types. Thus, in major epilepsy, where loss of consciousness, a fall, tonic and clonic contractions, stertorous respiration and sleep occur in regular sequence, it frequently happens that one meets cases where some phase is entirely wanting, or where the atypic feature relates to the duration of some phase. Even in the prodromal stage, where *aurae* are present one finds definite peculiarities. Dr. Alfred Gordon, Philadelphia, reports an interesting case in the *Jour. A. M. A.*, 4-9-10, where the aura is sufficiently interesting and noteworthy to warrant its repetition. His patient became "exceedingly restless," although "habitually morose, quiet and of a pessimistic nature. The restlessness is followed by a desire to kiss anyone who enters the house." In this case Dr. Gordon states the prodromal stage would last for forty-eight hours when the patient would have a typical major attack of epilepsy.

In the case, C. A., which I am about to describe, the prodromal stage was of extended duration. Thorough examination precludes any possibility of a hysteric or hysteroid condition. The various classic types are alternately exemplified in this patient. Complete amnesia as to happenings during the seizure is present. Frequently the prodromal stage will last for three or four days. At other times a grand mal seizure will occur suddenly, apparently without warning. The prodromal stage is marked by a progressive irritability and an aura. The latter consists of an indescribable tingling sensation in both arms and hands. C. A. himself states that his hands and arms were "dizzy." The irritability and general mental disturbance increase as the seizure progresses. It frequently becomes necessary to restrain him in this state. There are no apparent muscular contractions but there is frequently a generalized trembling. The mental disturbance becomes more and more intense, and a high degree of excitability exists. During this period acts of violence are common. There finally seems to be a summation of the psychic disturbances, a severe grand mal seizure marking the crisis and

curtailing further violent psychic and nervous manifestations. It is usual that after the grand mal seizure he will remain tractable and quiet, and his mentality will approach the normal most closely. The period of quiescence will last a week or more and then the vicious process will again begin. Lately this case is rapidly progressing toward dementia.

Sometimes, in this case, C. A., the grand mal seizure is replaced by a petit mal attack, evidenced by a temporary loss of consciousness, and rhythmic contractions of the muscles of his arms and neck. At other times the psychic disturbance may culminate in some violent act, after which there is a gradual clearing up of the mental sphere. After the performance of some act of violence, when the mental haze is gradually lifting, when asked about the act he will profess total amnesia, and cannot be brought to tell of any happenings during the seizure. During these attacks his condition may be said to be truly maniacal and the severe nervous explosion seems to relieve him.

J. M., age 20, was rather bright and intelligent during the inter-paroxysmal period. He was physically well-developed, robust and strong. Like the preceding case, a severe psychic disturbance marked the prodromal stage, which would sometimes last for a week or more. Naturally stubborn, irritable, passionate, pugnacious and impulsive, these conditions would become highly aggravated during the paroxysm and he would gradually develop a state of true mania. It would then become necessary to restrain him as acts of violence were very common. He would masturbate (during the period), incessantly, openly and shamelessly and would grow noisy, profane and obscene in his speech. Hallucinations and delusions were very common. At times he would see blood, then fire, persons, demons, a cross, and many other creations of his distorted mind. Of these he would incessantly speak, talking and rhyming in couplets. Indefinite muscular movements were constantly in evidence—his body was in constant motion. He would finally develop a severe grand mal attack, or a series of such seizures, and then would pass off into profound sleep, from which he would awaken in apparently good mental condition. This boy finally died in status. At times attacks of major epilepsy alternated with petit mal seizures. Sometimes, too, the psychic disturbances or delirium alone marked the seizure.

Cases where a post-epileptic state or frenzy or furor exists

are frequently met; cases, where the delirium or frenzy precedes the convulsions, are not very common.

Epileptics where the motor phenomena are confined to, or are accentuated on, one side of the body are occasionally met. The cases that have come under our observation have not shown any other atypic features. There are cases where the duration of either one or the other stage varies, but this variation is quite common and not of sufficient importance to merit citation. Gowers cites a number of cases where there was an inversion of the convulsive phases. In these the clonic stage preceded the tonic contractions. Marchand finds these to be quite rare. In the cases that he has seen "extended muscular twitchings" precede a generalized contracture. The beginning of an attack of grand mal in one of my cases is marked by a disturbed consciousness, and severe clonic muscular contractions confined to the arms. This is followed by complete unconsciousness, a fall, generalized tonic contracture, relaxation and profound sleep, of short duration. In this case too, there is a tendency to acts of violence immediately preceding and following the attack. Marchand observes that both the tonic and clonic phases may be absent, and may be replaced by a general trembling of short or extended duration.

I have in mind another case of major epilepsy in which the severe tetanoid condition was probably the only atypic feature. The subject, at the beginning of the seizure, would emit a shriek, leap into the air, and would fall invariably striking his head and heels almost simultaneously. He would then assume the opisthotonos position. The tetanoid condition varied in duration from a few seconds to a half minute or more and was followed by the usual clonic contractions, frothing at the mouth, stertorous respiration, and finally profound sleep. This patient finally had spasms so frequently that a chronic ulcerated condition developed on both heels and over the occiput, which thereafter never healed. Padding the parts evidently seemed to have no beneficial effect, so covering the floor with mattresses was finally resorted to. The patient eventually developed status during which he died. This man was subject to the most severe convulsions that I have ever witnessed.

Cases exhibiting attacks of unconsciousness with a fall, where all convulsive phenomena are wanting have been frequently described. These were first described by Caelius Aurelianus and called apoplectic epilepsy; later they were more thoroughly studied and described by Romberg and Trosseau

who called them apoplectiform attacks. (Marchand.) We have a case where such phenomena occur. His seizure begins with a cry, a pallor spreads over his face, and he falls, or rather sinks, to the floor, as if in a cardiac faint, then proceeds into a semi-stertorous state, and soon after arises dazed, without having shown any signs of muscular contractions, rigidity, or movement, the whole seizure occupying scarcely a minute. This type of seizure alternates with typical grand mal attacks.

A. E., another epileptic, presents a similar irregularity in the form of his attack. The spasm is initiated with a loud cry and frequently, some profanity, which is rapidly followed by unconsciousness, and a fall, usually without injury. There are no signs of tonic, no clonic convulsions. He will however, slide about the floor in a purposeless manner, micturate involuntarily and invariably, then arise and wander about his ward, apparently conscious, but will strike whomsoever he comes in contact with, if not previously restrained. This post-paroxysmal state of irritability is of short duration. After wandering about restlessly for a time he will lie down and sleep.

M. H. has an attack quite similar to the one last described. He will walk over to his attendant and inform him that he is about to have a "fit." He thereupon falls to the floor if not caught in time, and remains unconscious for a half minute or more. Muscular contractions sometimes occur, at other times only a slight trembling is in evidence; then again, he will have typical grand mal attacks. In all his seizures involuntary micturition is usual. He is too deficient mentally to indicate the form of his warning.

Cases exhibiting procursive features are occasionally seen. Spratling mentions a number of such cases that have come under his personal observation, and others that he has collected from literature on the subject. He states that this type is comparatively rare. We have two such cases in which this tendency is very active. One, a boy, now under the care of his parents, would run a quarter of a mile or more, it has been said, then stop suddenly and develop a typical grand mal attack, from which he would emerge thoroughly exhausted. In the other case, a girl, a run of ten or twenty feet precedes an incomplete grand mal attack. Such an attack frequently happened in her school room and unless restrained she would run up and down the aisles of the room. It frequently happens that acts of violence are committed during this stage especially if an attempt is made to interfere with the subject. It would

seem too, that this tendency is manifested occasionally if not frequently during the post-paroxysmal stage, as many frequently wander about restlessly, especially when the convulsion has not been very severe. One of my subjects exhibits the cursive tendency in a marked degree when disturbed in his post-epileptic sleep.

Many cases of petit mal or minor epilepsy show a divergence from the typical forms. The motor and psychic manifestations are variable. Consciousness may be impaired or entirely lost. The motor disturbance may be impaired or very limited. A tonic stage may be seen, or it may be absent. Clonic convulsions may occur or there may be only an indefinite trembling. Occasionally "there may be no other motor phenomena than tongue biting." (Marchand.) The motor signs may be very severe or so slight as to be barely distinguishable. We may on the other hand have simply a change in facial expression, a suddenly developed pallor, a fixed stare lasting only for a few seconds. Various degrees of automatic activities are seen in this disorder. Such automatic acts may even seem purposive but are in reality and invariably a production of subconsciousness, and are uncontrollable.

I will attempt to briefly describe a few of the cases of petit mal that have come under our observation. A. B. is subject to attacks that he himself calls "dizzy spells." I had a good opportunity to observe him in one of these. He was performing some little manual work, suddenly stopped, swayed a little, grinned foolishly, eyes then became fixed and staring; did not fall; I called to him but he gave no response nor did his expression change. I then noticed that he had micturated. He gradually recovered consciousness, sighed, looked bewildered, and then sought to continue the work that he had begun. He was dull and stupid the remainder of the day.

W. K. had attacks during which consciousness was not entirely lost. The convulsion is manifested by an involuntary cry, following which there is a rapid succession of rhythmic muscular contractions confined to his arms and neck. He was never known to have fallen during these attacks. During the seizures he appears to be highly frightened, and seems to be attempting to ward off something which he seems to see. He was too deficient mentally to respond to questions.

Dr. L. Pierce Clark, N. Y., in the Jour. A. M. A., 11-7-14, reports two interesting cases of petit mal belonging to the nocturnal variety. He says: "The patients usually awaken from deep sleep; the eyes are opened widely; the pupils are

dilated and irresponsive to light; the head is moved from side to side. There is an anxious and furtive look in the face. The face may be congested or very pale, and is usually the one or the other to an extreme degree. In a few seconds after the onset the patient executes some incredible rapid movements of the hands or feet but with no clear intent or purpose, such as is seen in the somnambulistic states. For instance, the patient drums on the bed, executes kicks aimlessly in space, or beats his head, thigh or chest in a senseless way. He may spring in the air or turn somersaults rapidly. Sometimes patients exhibit attention when spoken to, but they most frequently make no coherent reply. Unless disturbed, the patient passes off into normal sleep at the end of the attack." Dr. Clark further states that the attacks sometimes were "simple awakening from sleep" and that they recurred very rapidly. In one of the cases 300 separate attacks occurred in eight hours. I cite these cases simply to demonstrate the great variability of the psychic and motor manifestations seen in this form of epilepsy.

Dr. A. C. Nussle, of Chippewa Falls, Wis., relates an interesting case which seems somewhat similar and yet is different from the case described by Dr. Clark. His case is a child seven years of age who had been subject to this peculiar epileptic seizure since three years old. The attacks always occurred at night, usually after mid-night. The lad apparently awakens from sleep and sits up. He soon develops unconsciousness and cannot be aroused. The attacks last from three minutes to a half hour. The eyes are immobile, set, and are always turned to the right. Tonic contractions of the muscles of his arms are present, but not well-marked; the muscles of the lower extremities too, are slightly involved. The head is slowly turned to the right side; no movements of the muscles of the face are apparent. After the attack is over he gradually recovers consciousness and appears to be quite rational; goes to sleep a little later. He sometimes has two or three seizures in one night. At other times he will go for a week without a spasm. Recently the boy developed an attack during the daytime while out-of-doors. His father found him leaning against a fence undergoing the same form of seizure as described above. This seizure, however, lasted one-half hour. He was carried into his home where he gradually recovered consciousness, but had no recollection of any happenings during the seizure. Clonic movements were absent not only during this seizure but during all seizures that he had.

Besides loss of consciousness one might regard the post-paroxysmal amnesia as a classic sign of epilepsy. This state, however, varies, especially in the minor form of epilepsy. It sometimes happens that a patient will remember in part what has occurred during a spasm, and again, it also occurs that where loss of consciousness is not complete, that a person may be questioned and answers may be received during such seizures. Again, it also occurs that a person when so questioned has no recollection thereof after he has recovered from the attack; or, he may remember in a hazy way what has occurred. A number of observers have noted that loss of consciousness is not essential to establish a diagnosis of epilepsy. Marchand observes that "atypic attacks occur where there co-exist consciousness and inability to move." He however adds, "did not such attacks alternate with epilepsy they could not be referred to an epileptic origin." One would, however, believe such attacks to be of psycho-genic origin.

We have an inmate who is deteriorating rapidly mentally, who always seemed very interesting to me. He is a lad about twenty-five years of age, and was at one time quite bright. Any possibility of an hysterical element can readily be excluded. The seizure described has always, (that is, as long as he has been under our observation) alternated with typical grand mal attacks. The subject, R. G., may be seated quietly playing cards, checkers, or any other game, or may be employed at some slight manual work on his ward, or, enjoying some out-door exercise, when suddenly he will emit a yell, jump up, if seated, grasp his genitals and rush toward the toilet when in his cottage. (Or anywhere out of doors.) During this time there is generalized trembling, swaying of the head from side to side, eyes staring. If an attempt to restrain him is made he will immediately attempt to arise and re-perform the act. The entire seizure will last from a few seconds to a minute or more. While in this state consciousness is not entirely lost, and he will sometimes give incoherent answers to questions. At other times he will pay no attention to interrogations. After the seizure he is able to tell in an inaccurate way what has occurred during the attack. He states that he knows when the seizure is developing and experiences a feeling as if he is about to have an orgasm. This form of seizure too, alternates with true epileptic automatism which may persist for the greater part of a day. At other times he is subject to a stuporous mental condition and beyond uninhibited automatic acts there are no apparent motor activities.

Complete disorientation sometimes follows these attacks. Lately he has developed a state of dementia.

A. B., too, presents noteworthy atypical features in the form of attack that he is subject to. He likewise suffers from grand mal seizures, which recently have become less frequent. Lately too, his spasms occur more frequently nocturnally. The atypical form can be described as follows: The onset is sudden and may occur at any time. He will run about ten yards or more, crying during this—"stop it, B——, you d—— fool, B——, B——, you fool stop it!" He will then stop suddenly as if dazed, grasp his genitals with one hand, and with the other strike himself with full force on his chin, repeatedly. During all this time he will continue yelling "B—— you d—— fool, etc." The entire seizure lasts from ten to thirty seconds or more. He recovers consciousness rapidly, but appears to be dazed for a short time afterward. He invariably micturates during the attack. When questioned there is absolutely no recollection of anything that has occurred. That the condition is not of hysterical origin can readily be deduced from the severe punishment that is self-inflicted. In fact, at one time he developed a large callus on his chin, and some time afterward an abscess in the same locality. Since the abscess healed I have not known him to strike his chin. He very seldom has diurnal attacks now.

C. H., an intelligent epileptic, was subject to violent attacks of grand mal. As the disease progressed the grand mal seizures were replaced by attacks of petit mal. He was unconscious of any aura. The attacks occurred frequently and always developed suddenly. He would emit a most horrible shriek, jump up, walk about rapidly and aimlessly, wave his arms about his head and continue his yelling, which resembled the cry of some enraged or tortured beast. During one of these attacks he almost succeeded in throwing his sister, who was caring for him, out of a window. I have seen him in a number of seizures and he appears to be conscious of all that he is doing, yet afterward has no recollection of anything that has been done. The attempt to throw his sister out of a window happened while the boy was home on a visit. He himself came back voluntarily and told me that he feared that some time he might perpetrate some "awful crime." The case remained with us until his death. A few days before this occurred he had several severe grand mal seizures and it was noticed that he had developed a hemiplegia. A few days

later the paralysis progressed and he soon after passed away—he had attained his desired and oft-repeated wish.

Fragmentary and rambling as this paper is, I will feel that it has accomplished something if it will serve to stimulate further research, and impress you with the variable nature of epileptic phenomena. I have not attempted an analysis of the cases presented, as such an attempt would cover a more lengthy and tedious work than would seem to be appropriate here. In respect to treatment of all conditions of epilepsy, I could only emphasize the importance of segregating these unfortunate cases, and would add that segregation, at this time, seems to be the only rational procedure. We know their proneness to mental and moral perversions—we also know their propensity to the performance of crimes that may seem purposive, but are in reality automatic acts subject to a clouded consciousness and uncontrollable. Placing them in congenial surroundings with their mental equals oftentimes produces results more beneficial than medicines. I have one case in mind who had epileptic seizures very frequently at home. Two years later when his mother visited him, she immediately inquired as to the frequency of these, since he had come under our care. He has never been known to have had epileptic attacks since he came under our observation, and has been with us for a period of five years.

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A STUDY OF THE VOICE AMONG FEEBLE - MINDED— A SPEECH SYNDROME¹

BY WALTER B. SWIFT, A. B., S. B., M. D., Boston, Mass., Instructor
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The speech of late years has played a better role as an approach to diagnosis than for many years previous. Previously tests of the speech were gross; observation could see only large things; and the ear was uneducated except to listen for mere words. Now all these ways to judge the voice have changed; our **speech testing instruments** are finer in their records; observation can see innumerable details; and the ear can detect minute shades of tone, increasing of intensity, and slight faults of execution—all diagnostic points.

Some of the older observations were these: The scanning speech of multiple sclerosis, the syllable omission in general paralysis of the insane, stuttering, and the minor disorders of pronunciation technique; lisping, and "tongue tie," and the rest. Of course there were the aphasias, motor, sensory and conduction; and about all the rest was considered pretty vague, indefinite and too valueless.

Now the vocal kymograph has analyzed and pictured the speech change of chorea; (1) congenital syphilis or congenital spirochetosis, (2), as it has been recently called, has lately revealed (3) its sign in the voice. The type of voice in tabes (4) is now fully analyzed by those newer methods and finer observations, and described to a finesse never before attained.

The five other diseases where speech presents a sign of the involvement have been investigated, recorded and are soon to be published. Then the speech will be shown to rank as one of the best and easiest avenues of approach in diagnosis.

If in all these diseases the speech mechanism shows peculiar characteristics of each disease and distinctly not found in any other, we are justified, at least before we investigate in suspecting that feeble-mindedness might present speech characteristics peculiar to itself—might show unique elements—might have signs not found elsewhere. So it does.

Presented August 3, 1915, at the Oakland, California, meeting of the American Association for the Study of the Feeble-Minded.

This short paper is a summary of the observations taken down during my three years' special study of nervous diseases in Berlin in the clinics of Oppenheim, Ziehen, Schuster, Toby Cohn, and others, during four years as assistant in the Neurological Department of the Boston City Hospital in the service of Professor John Jenks Thomas, and since then for three years in charge of the Voice Clinic of the Psychopathic Hospital, Boston. I mention this to show it is not the matter of a moment! From all these sources of observation, and more especially the last one, have I drawn the data which enables me to put together into a fairly clear form the characteristics of the feeble-minded voice. They are tabulated in such form as to be, not exactly a sign, (because there are really numerous signs in one), but rather as a speech syndrome—a combination of signs or peculiarities—all of which together are pathognomonic, any one of which alone may occur occasionally in any voice.

What are then the combined elements in the voice in feeble-mindedness? We will not enter these in minute detail; for one reason because their detail is very lengthy, and for another reason that it would require the time for the presentation of several long cases in order to make the matter complete. We shall therefore leave this detailed consideration for another paper.

There are three chief characteristics in the syndrome of the feeble-minded voice:

- A. Good speech elements.
- B. Little or no combination of elements.
- C. Little or no capacity for vocal education.

In a rather summarized form this is a statement of the way the speech in feeble-minded appears. This combination of vocal peculiarities in just this relationship exists in no other different disease entity of which I know. The speech signs as mentioned in the disease farther above are all different from those here tabulated in feeble-mindedness, and the speech characteristics in the five diseases soon to be published (and mentioned casually above) are likewise entirely different from the voice elements described here in these three parts. I hope that when the analysis of this speech syndrome has been finally made that it may become so important that it will be a first sought for sign of mental trouble. If it is finally found to be pretty constant in all its parts it must therefore

become a valuable sign, because so simple to test, so easy to detect, and so sure to show.

Let us briefly now consider each one of these characteristics a little more in detail, leaving full detail for our other paper.

A. Good Speech Elements.

This characteristic of the syndrome in feeble-minded speech means that the isolated individual sounds of our language are usually correctly enunciated. I mean by this that the vowels are pronounced according to the local standard, and the consonants, if they are all learned, are usually also correctly enunciated. Oftentimes there is a lack of one or two consonants and sometimes there is found in the vowels a slight shade of difference from our normal standards, but these are minor and inconstant parts of the syndrome. I have known some cases to have all the vowels and consonants correct in their enunciation; I have seen others who have had about half; and others who had all the vowels correct, but lacked those consonants which were enunciated back in the throat, and whose execution is hard to see. In fact, several cases have been brought to me for this one symptom alone.

There is one more characteristic that is rather usual, and generally pervades these otherwise perfect elements of speech. This is a sudden shortened quick enunciation of these sounds, as if there was inattention and effort to hurry utterance, and inability to hold the sound long in mind.

Now a word about the second characteristic; and as I go from one to another it will be quite plain to see their overlappings, their inter-relations, and their mutual dependencies.

B. Little or No Combination of Elements.

With this remarkable excellence in the fundamental sounds of speech even the vocal expert is surprised to find great difficulty in combining these elements. When first seen a case of feeble-mindedness can hardly say a, á, e, after you, where almost every case can utter any of these isolated sounds after hearing it once. Here, then, the trouble is in combining elements that are otherwise perfect. An ordinary child after hearing six vowels repeated can repeat them all correctly. The case of feeble-mindedness may rarely be able to do this after weeks of training. This shows that not only is the combination difficult, but the learning capacity of the combination is difficult. This difficulty in combining otherwise perfect elements shows to a more marked extent when the consonants are added to vowel sounds; and then a series of monosyllables

given, such as pa, pâ, pe, pi, po, pu. When such an example for repetition is given rarely can one or two be given in succession. This difficulty amounts to an almost insurmountable obstacle when combinations or different words are given, such as, "the pussy cat ran across the street." This series of words is almost impossible for any good feeble-minded case to utter, when first heard.

As far then as combination of elements is concerned, the voice in feeble-mindedness can utter very few and simple ones. Combined vowels and consonants and also combinations of words show in this succession an increasing amount of difficulty.

C. Little or No Capacity for Vocal Education.

Whereas the elements of speech are surprisingly perfect, and the combination of those elements shows surprising lack of capacity, the lack in learning ability after constant and long-continued drill is most surprising of all! Anyone would naturally think that if the elements of speech could be reached and perfected in execution and that a few combinations could be made that conscientious and long drill would surely result in marked growth in the ability to make more and more complex combinations. I grant that rarely there is little progress. But the usual picture in these cases is little or no capacity to improve after long continued drill. For example, a child who at first could not say three vowels in succession may finally learn to say six with a mistake or two, but will always fail if the order is mixed up. They may sometimes be able to add a consonant and say the vowel, too, but not with any show of intricate combination, and as for words, only short words, usually monosyllables, and short sentences are the ends to which constant, long and persistent vocal drill finally bring the case of feeble-mindedness.

D. Summary.

Let me recapitulate. Speech as an avenue to diagnosis of mental capacity, mental defect and psychiatric conditions is becoming more and more recognized as a valuable avenue of approach. Already the speech signs have been minutely analyzed and are recorded in the literature from some ten or fifteen diseases. The five remaining ones which deserve attention will be in the literature inside of a year. This has led to a new attempt to find something characteristic in feeble-mindedness. After observation of numerous cases in Berlin, at the Boston City Hospital, and in the Voice Clinic of the Psycho-

pathic Hospital a characterized syndrome of speech peculiarities has been found for feeble-mindedness. This consists in the three characteristics:

1. Good elements of speech.
2. Little or no collaboration.
3. Little or no learning capacity.

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MINUTES OF THE ASSOCIATION.

The thirty-ninth annual session of the American Association for the Study of the Feeble-Minded met in room 1, Philosophy Building, University of California, August 2nd, at 9:30 A. M. The session was called to order by President Goddard. Letters of greeting were read from Dr. Shuttleworth of London, England, and Dr. McMurchy of Toronto, Canada.

Members present were: Dr. H. H. Goddard, Dr. A. R. T. Wiley, Dr. J. K. Kutnewsky, Dr. George Mogridge, Dr. W. S. Fast, Dr. Wm. J. G. Dawson, Dr. Velura Powell, and Dr. A. C. Rogers.

Visitors in attendance were: Mrs. Wylie, Mrs. Kutnewsky, Mrs. Fast, and about forty teachers and others from Berkeley, Oakland, San Francisco and other parts of California.

President Goddard delivered the Annual Address. A

paper was next presented by Elizabeth E. Farrell of New York City and read by Miss Johnson, on "A Report on 350 Children Who Have Left Ungraded Classes." A short discussion followed the reading of this paper. The question raised as to why there were more boys than girls in these schools was answered by the statement that the boys were, as a rule, more troublesome in the schools and thus entered the special classes more frequently. On the other hand, they were more apt to leave the schools early and thus the girls did better work because staying longer in the special classes. Dr. Neff asked whether there were many commitments by the court for misconduct. Miss Johnson stated that commitments were frequent but that in the examination if the persons were found mentally deficient they were sent to the Institution for Feeble-Minded, rather than to the Correctional or Penal Institutions.

President Goddard suggested that there should be much more complete records kept of the classification of pupils in the special classes, showing their classifications, degrees of mental deficiency, etc. It is important that in all schools of this kind and those relating to delinquency depending upon mental deficiency, there should be an analysis showing the proper classifications at least as to the three general classes of morons, imbeciles, and idiots. The process of admission to the special classes was explained by Miss Johnson.

In connection with the subject of wage earning capacity, the statement was made by a visitor that in studies made in St. Louis, it was found that young men of low mentality could earn as high as \$7.00 per day doing piece work in foundry moulding and other similar employment. President Goddard suggested that this was what might be expected in regard to routine employments for this class of people.

The following names were proposed for membership and elected. Active: Miss Margaret Hamilton, Los Angeles, California; Dr. H. C. Smiley, Ridge, Colorado, Associate; Elizabeth J. Harkness, Pasadena, California; H. E. Kellington, Berkeley, California; Mrs. J. B. Richardson, Piedmont, California; Miss Charlotte S. Playter, Piedmont, California; Miss Bertha R. Stevens, Berkeley, California.

The Association adjourned until 2:30 P. M.

The session again opened at 2:30 P. M. with about seventy people in attendance. A paper was read by Lewis M. Terman of Stanford University, California, on "Some Problems Relating to the Detection of Borderline Cases of Mental Deficiency."

After a short discussion, a paper was read by William

Palmer Lucas, of San Francisco, California, on "Psychological Studies in Pediatrics and the Problem of the Defective from the Standpoint of Medical Teaching." As this paper discussed principally the necessity of co-ordination of all forces interested in the study of mental deficiency, Dr. Terman asked Dr. Lucas if he would present a better scheme for better co-ordination.

"A Graphic Method of Illustrating Mental Deficiency" was presented in the form of a chart by A. C. Rogers.

The Chair announced the following committee on organization: Doctors Kutnewsky, Wylie, and Mogridge. Auditing, Doctors Dawson, Wilmarth, and Powell. Time and place: Doctors Fast, Bernstein and Emerick.

The President announced that the evening session would be omitted.

The Association then adjourned to meet Tuesday morning in joint session with Section L, Education, of the American Association for the Advancement of Science, when a programme was presented on Mental Tests and their Pedagogical Significance.

The Association adjourned to meet at 2:30 P. M., in Room 101, California Hall, Berkeley.

The Association met at 2:30 with President Goddard in chair. The following persons were proposed and elected to associate membership: Elizabeth A. Wilkinson, Waterman, California; Delia Rankin, Topeka, Kansas, and Gladys Grover, Berkeley, California.

A paper on Atypical Epilepsy by A. L. Beier, Chippewa Falls, Wisconsin, was read by title, "The Death Rate and Causes Among the Feeble-Minded," was discussed by President Goddard and his subject illustrated by charts. Dr. Mogridge, in discussing this paper, suggested that the conclusions were effected unfortunately by the fact that the moron group of children formed an unstable factor of the institution population, while the imbeciles were a more permanent group, and the idiot group a still more permanent feature of the population.

Referring to the Mongolian group, Dr. Dawson stated that there were two cases from one family in the Sonoma Home. Dr. Rogers stated that at the free clinic in Pediatrics in connection with the University of Minnesota, there are a large number of Mongolian children and that undoubtedly the death rate was higher than that indicated by the institution statistics relating to this class. It was also extremely prob-

able that there were more cases of this class taken care of at home than generally supposed, owing to the fact that they were so often found in well-to-do families where there were no other cases of mental deficiency.

"A Study of the Voice Among the Feeble-Minded," by Walter B. Swift, Boston, Mass., was read by Dr. Rogers. A paper on "The Interpretation of Anthropometric Measurements of the Feeble-Minded," by E. A. Doll of Vineland, N. J., was read by President Goddard. Dr. Rogers suggested, in the discussion of this paper, that if further investigation confirmed the very interesting conclusion adduced by this paper that the feeble-minded presented a distinctive anthropometric curve, the question of diagnosing mentally deficient people at Ellis Island would be readily solved.

The committee on organization reported as follows: For President, Dr. Chas. Bernstein; for Vice-President, E. J. Emerick; for Secretary and Treasurer, Dr. A. C. Rogers; for editorial staff, Dr. A. C. Rogers, Dr. Fred Kuhlmann, Dr. W. E. Fernald, Dr. Geo. Mogridge, Dr. A. R. T. Wylie, Dr. H. H. Goddard, Dr. C. S. Little, and Dr. Wm. Healy. The report was adopted.

The committee on audit reported the examination of the accounts of the Treasurer and the same was found to be satisfactory. Dr. Rogers moved that the President be authorized to appoint members of the Association to represent it in affiliated organizations, as in his judgment seemed wise and best. The motion was carried.

The committee appointed to consider endorsing the Vineland extension movement and of which Dr. W. E. Fernald was chairman, reported through the Secretary, that in their judgment a formal endorsement of Vineland was unnecessary.

Dr. Mogridge moved that the thanks of the organization be formally expressed to the authorities of the University of California for the courtesy extended in opening their doors for the Association meetings.

The Association adjourned.

TREASURER'S REPORT, 1914-1915.

Cash Dr.

Balance on hand June 13, 1914	\$339.11
To cash Dues, 1909	5.00
" " " 1910	5.00
" " " 1911	12.00
" " " 1912	32.00
" " " 1913	68.00

" " " 1914	134.00
" " " 1915	20.00
To sale of Journals	177.45
To sale of Dr. Kuhlmann's Revision of the Binet-System	38.94
To sale of Reprints	4.68

\$836.18

Cash Cr.

By Printing and Composition Work on Journal	\$255.72
" Proofreading	12.00
" Stock and Envelopes	128.96
" Etching of Outlines and Diagrams	13.45
" Postage	16.19
" Telegrams and Express	4.48
" Traveling Expenses account of Reporting at Columbus Meeting	41.60
" Type	5.88
" Clerical Work	25.00

\$503.28

Balance on Hand 332.90

\$836.18

June 23, 1915.

NEWS AND NOTES.

Dr. Chas. Bernstein, Superintendent of the Rome State Custodial Asylum, Rome, N. Y., sends the following items that will be of interest to readers of the Journal of Psycho-Asthenics.

The first concerns a plan to employ boys from the Custodial Asylum to reforest 100,000 acres of State land during the next ten years, and which would involve a saving of \$700,000 to the State. A letter from a man in charge of a group of boys camping on this land tells of the progress and success of the work. Over 2,000 trees a day were planted during the first few days, with a maximum of 5,000 trees a day aimed at.

The second is a year's report on a "Working Girls' Domestic Colony," in Rome, as follows:

"A Working Girls' Home has been established at 209 W. Thomas St., telephone number, 172-J, where girls are available for domestic work, sewing, etc., by the day, week or month. The girls going out from this place to work are capable of doing all kinds of domestic work except special cooking. They are able to do only common cooking. Their services may be secured by telephone at the rate of fifty cents per day and thirty cents per half day, and their services will be available for employment at any time on short notice by telephone. Settlement for services will be paid direct to the manager of the Home. Bills will be regularly rendered for such services. These girls are not defectives, but are girls who have been orphans and have never known a natural home, and when later in life they have gone out into the world they have been unable to get along because of lack of proper home training and natural worldly experiences, as the result of which

they were sent to this Asylum for study, care and training, and we are sending them out to work, after having been thoroughly trained and tested here, to see if they can get in touch with the world under normal conditions and thus learn to be self-sustaining and have their entire freedom.

FIRST ANNUAL REPORT, GIRLS' COLONY,

OCT., 1914, TO OCT., 1915.

Total amount earned during the year\$3,278.91

Disbursements—

Colony Girls (Cash and clothing purchased) ..	\$1,863.85	
House Rent	375.00	
Furniture and Furnishings	321.84	
Salaries	405.00	
Provisions	19.01	
Material for Clothing (Colony)	10.48	
Expenses, (Water Rent, Telephone, Lighting, Traveling Expenses, Entertainments, Car Fare, Etc.)	273.56	
Balance	10.17	\$3,278.91

No. Girls	Amount Earned	Paid in Cash and Clothing
1	\$ 25.30	\$ 4.00
2	107.10	71.50
3	123.50	67.70
450	
5	168.25	93.50
6	67.60	29.44
7	35.00	1.75
8	20.20	24.79
9	45.80	18.75
10	119.30	42.17
11	118.40	58.85
12	1.00	.80
13	11.30	10.10
14	13.06	
15	7.30	12.04
16	92.40	52.60
17	37.30	40.41
18	29.90	23.08
19	53.05	22.67
20	18.30	20.01
21	134.50	64.41
22	27.90	4.25
23	45.00	31.41
24	32.10	27.32
25	45.10	49.88
26	41.05	27.98
27	112.60	50.16
2830	1.00
29	4.30	
30	9.95	5.50
31	20.00	5.50

32	34.20	8.00
33	19.90	10.25
34	84.60	65.55
35	122.20	89.67
36	9.60	5.50
37	13.80	8.00
38	14.30	3.75
39	10.70	9.77
40	62.60	13.14
41	1.00	
42	44.30	25.04
43	62.60	39.62
44	8.70	14.70
45	10.70	1.60
46	3.20	
47	2.75	10.75
48	2.10	
49	42.50	6.75
50	2.30	5.58
51	61.80	19.20
52	26.00	37.87
53	2.10	.50
54	6.80	12.76
55	.80	
56	1.30	
57	54.60	2.00
58	18.80	5.50
59	58.55	20.30
60	6.50	
61	6.50	8.55
62	3.80	2.00
63	34.00	14.96
64	25.30	6.15
65	4.20	2.50
66	136.85	50.72
67	163.90	42.93
68	144.20	95.38
69	7.90	8.00
70	.30	
71	46.00	26.67
72	94.60	89.01
73	10.20	2.50
74	9.90	10.50
75	136.10	123.19
76	9.60	9.21
77	7.00	

(Total amount earned by 77 girls)

Of the 77 girls who worked at this colony during the year, twenty-five were returned as follows: Nine for social offenses; nine of the younger girls who had not had sufficient training and seven others were returned because of sickness or because their services were worth more to the institution than they were getting outside,—namely, \$3.50 a week. These girls served 226 families in Rome during the year, a number of them of course, worked one or two days a week at

different places, about half of them having regular places where they stay continuously.

A letter from Dr. G. E. Shuttleworth enclosed the following program of the Annual Conference of the National Association for the Feeble-Minded, which met in London, June 25th, 1915. The Conference was on "The methods of examination best adapted to ascertain the presence, or otherwise, of mental defect."

"A scheme for the detection and treatment of mentally defective children." ROBERT HUGHES, M. B., M. R. C. S., L. R. C. P. School Medical Officer, Stoke-on-Trent.

"The detection on the large scale, of mental deficiency in school children." W. H. WINCH, District Inspector of Schools, L. C. C., Member of Board of Psychological Studies for University of London.

"What tests in childhood are best calculated to throw light upon their capacities for future work, i.e., for earning their own living?" W. A. POTTS, M. A., M. D., Medical Investigator, Royal Commission on Care and Control of the Feeble-Minded.

"Binet-Simon tests, as a means of grading mental defectives under the Mental Deficiency Act." W. B. DRUMMOND, M. B., C. M., F. R. C. P., Medical Officer, Children's Hospital, Edinburg.

"The value of uniform examination of the feeble-minded for educational purposes." ALLAN WARNER, M. D., D. P. H., Medical Officer, Leicester Educational Committee.

"Practical application of the Binet tests." R. LANGDON DOWN, M. B., M. R. C. P.

"Classification of mentally defective, as regarded from the legal standpoint, under the Mental Deficiency Act." C. B. SHERLOCK M. D., D. P. H., Medical Superintendent, Darenth Industrial Colony.

"Practical difficulties in regard to medical examination under the Mental Deficiency Act." WILLIS BUND, K. C., J. P.

"Classification of the mentally defective from an administrative standpoint." H. W. SINCLAIR, M. D., D. P. H., School Medical Officer to the Essex Education Committee.

"The characteristics and identification of the feeble-minded criminal." CHARLES GORING, M. D., M. B. C. S.

Copies of the Conference Report may be obtained through the Secretary, National Association for the Feeble-Minded, Denison House, 296 Vauxhall Road, London, S. W.

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FORM BOARD SPEEDS AS DIAGNOSTIC AGE TESTS

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N. J.

For a number of years the form board has been used as a test in mental diagnosis and has met with universal favor. We refer to Goddard's modification of Norsworthy's form board, variously known as the Seguin form board, the Twitmyer or Witmer form board, and the Goddard or Vineland form board.

The history of this piece of apparatus is rather interesting. Seguin originally used several form boards with insets varying in number and shape as a means of training mental defectives; these original boards may still be seen at Waverly, at the Seguin school, and at one or two other schools which Seguin visited in this country. In 1906 Norsworthy used a larger board with ten insets of different forms arranged in three rows; she called this the "block test" and her aim was mental measurement rather than training. Somewhat later Goddard modified Norsworthy's board by substituting a Greek cross and a five pointed star for the hexagon and octagon, which he thought were somewhat confusing; he also changed the angle of the diamond inset and placed the oval on the bottom line instead of between two lines. Like Norsworthy, Goddard was interested in the form board as a mental test rather than as a means of training. The Twitmyer or Witmer form board was intended as a copy of Goddard's "Vineland" form board, but in the course of reproduction the positions of the insets

were accidentally changed; also a light rim was placed around the edge of the board.¹

The form board has found universal favor with all who have used it as a test of mental ability. As a standard situation in which an individual's reaction may be observed it gives unusually good impressions concerning mental capacities. Many laboratories consider it their best single mental test. A number of researches have been made with this test with the purpose of standardizing it objectively. These studies have shown that the speed with which the insets are replaced is a good measure of mental development, inasmuch as the average speeds for successive chronological and mental ages of normal and feeble-minded subjects are consistently correlated. The observations regarding errors made in replacing the blocks have not proved so reliable as objective measures of intelligence, but they are highly valuable as giving the observer an insight into the child's mental make-up.

Aim. Our criticism of the quantitative standardization of speed of replacing the blocks is that individual variation is sufficiently high to disturb the comparison of a particular record with average for a given age. This is particularly true of the higher ages. All studies have given average or median speeds for successive ages and some have given mean variation. The purpose of the present study was to see if form board speeds could be used as diagnostic age-tests according to the per cent. passing at given ages for given speeds. This method gives a much more satisfactory basis of comparison than the quantitative norms with their disturbing mean variations.

Procedure. The procedure for giving this test varies in different laboratories. Whipple advocates a standard method which has the advantage of making all records more directly comparable as to speed and errors, but has the disadvantage, qualitatively, of obscuring individuality of reaction.² The procedure used in obtaining the data here reported was that for-

¹In view of the fact that the form board as a mental test was first used by Miss Norsworthy, we recommend, at Dr. Goddard's suggestion, that in the future this be called the Norsworthy Form Board instead of by some other designation. If desirable, for specific purposes, Dr. Norsworthy's original board (now rarely used) might be called the Original Norsworthy Board. A detailed account of the history of this test is given by Sylvester, P. 2 f., who credits the original Norsworthy board to Blair.

²Since 1913 the Vineland Laboratory has made use of this method. A standardization of the test on this method is now in progress.

merly used by Goddard, which is as follows: The board is placed on a table of suitable height, with the position of the board such that the square is at the lower right hand corner from the subject. The board used was Goddard's modification of Norsworthy's board as described above (and as manufactured by C. H. Stoelting Co.) The subject stood directly in front of the board. The blocks were laid out in a miscellaneous order at the subject's right. The subject was told that the blocks were to be replaced in their proper holes as quickly as possible but with due regard for errors. He was given three trials and was allowed to use either or both hands. The observer recorded the placement of each block by an assigned number, together with the number of each incorrect attempt at placing. Speed was taken with a stop-watch and recorded in tenths of seconds. The observer also recorded the hand used and all special difficulties or observations. The speeds were transferred to filing cards.

Material. For making the present study the writer with the aid of Miss Norma Cutts, then a research assistant at the Vineland Laboratory, in October, 1913, tabulated the best speeds of the three trials for the last recorded performances of 432 feeble-minded children at The Training School. The records, with a few exceptions, were made in 1912 and 1913. The subjects were unselected except that physical abnormalities (paralytics and ataxics, for example) were not included. The subjects were arranged in classification by mental ages taken to the nearest full year as determined by Binet-Simon tests. Thus mental age 5 means from 4.6 to 5.4. These speeds were averaged (mean average) for each mental age by sexes and by totals, and mean variations were computed.

Results. The distribution of the cases with the averages and deviations are presented in Table I. This table shows, reading from right to left, mental age, number of males, mean average speed for males, mean variation for males, number of females, mean averages for females, mean variation for females, total number of cases, total mean average, total mean variation. "F" indicates failure, or practically an infinite number of seconds. The columns are not averaged since the age-averages are not comparable for a total average except as showing sex differences, and the sex average is affected by the unequal distribution of cases at the different mental ages. The averages are based only on successful performances and do not include failures. The sex differences in Table I are presented graphically in Curve I which shows the sex averages

TABLE I.

Mean averages and mean variations of form board speeds for 432 feeble-minded subjects of both sexes, arranged by mental ages to the nearest full year. Averages are computed for successes only. F indicates failure.

Men- tal Age	293 MALES			134 FEMALES			432 TOTAL		
	No. Cases	Av. Sec.	m. v.	No. Cases	Av. Sec.	m. v.	No. Cases	Av. Sec.	m. v.
1	14	F		12	F		26	F	
2	27 4	F 92.6	11.5	17	F		44 4	F 92.6	11.5
3	14 13	89.5 F	60.7	13 6	64.2 F	28.3	27 19	77.3 F	44.8
4	30 4	84.2 F	61.1	8 2	60.0 F	22.6	38 6	80.0 F	52.0
5	21 1	72.4 F	49.8	9	35.6	15.3	30 1	61.4 F	41.7
6	30	33.8	13.3	8	24.9	5.7	38	31.9	10.5
7	44	25.0	8.0	22	25.7	7.8	66	25.2	7.9
8	41	19.4	3.0	15	19.0	3.4	56	19.3	3.1
9	27	17.3	2.2	12	16.2	1.4	39	17.0	1.9
10	18	18.7	5.3	3	15.2	.9	21	18.5	5.0
11	10	16.4	3.5	7	15.9	3.0	17	16.2	3.3

for the successive mental ages. The total averages with mean variations are presented graphically in Curve II. From the table and curves these conclusions are obvious:

1. There is a marked decrease in total average seconds of speed with increase in mental age as far as mental age 9. The Pearson coefficient of correlation for mental ages 3 to 11 inclusive is $r=.78$ (P. E. .014).

2. Mean variation is high, with a coefficient of varia-

bility for totals ranging from .10 to .65 and seldom below .25.

3. Girls are superior to boys in average speed at three mental ages and significantly superior (more than 20 per cent.) at five others.

4. Girls show also less variability than boys at eight mental ages.

5. Because of excessive variability at mental ages 10 and 11 the quantitative norms are not valid after mental age 7 for comparing individual cases inasmuch as 10- and 11- year subjects might fall below the 8-year average.

These conclusions are based on institution feeble-minded subjects of a wide range of ages and clinical types. It is not intimated that they are otherwise valuable. The effect of chronological age was not computed. Inspection of the material clearly indicated that there was no appreciable influence of age within the mental age groups. The older subjects, say above 40, showed somewhat lower speeds than the younger subjects but they easily fell within the ranges of the variability of the younger subjects.

Diagnostic speeds. By applying a given speed to Curve II one sees the difficulty of comparing individual records with the quantitative norms. Take for example 17, 18, or 19 seconds; it will be seen that these fall within the 50 per cent. range for mental ages 7, 8, 9, 10 and 11. Or take 30 seconds, this falls within the 50 per cent. range for mental ages 4, 5, 6, and 7. Almost any speed cuts at least two ages and usually three. To avoid this difficulty we proposed standardizing form board speeds not by quantitative norms but by the percentage of cases passing at different ages for different constant speeds. This method is that used in standardizing so-called diagnostic tests, according to which a test is standard for the age at which approximately 75 per cent. of the cases at that age succeed. Many objections may be brought against this criterion, which apparently has empirical but not theoretical justification. Nevertheless, inasmuch as the method is generally accepted and has many practical advantages, we adopted it. One difficulty of this method is that of obtaining the standard scores on which the percentages are computed. Too often this is an a priori or an arbitrary standard, not actually derived from the data. Our own method was as follows: The cases were arranged in mental age classification and the speeds of performance were arranged in increasing order. But since the physical units of

seconds do not represent the psychological units, that is psychologically a second of difference at 20 is roughly equal to 5 seconds at 120, we shortened the tabulation by grouping the seconds of speed unequally and approximating the individual speeds to the nearest unit. This grouping proved entirely satisfactory. It is found in Table II. Performances were tabulated by 1-second intervals from 10 to 30 seconds, 2-second intervals from 30 to 60 seconds, 5 from 60 to 120, 10 from 120 to 180, 15 from 180 to 240, and 30 from 240 to 300. No successful performance required more than 8 minutes. It should be stated here that in applying the test a child was allowed as much time as he desired. He was not stopped so long as he made any progress at all in replacing the blocks.

A frequency distribution was made for the number of individual cases at each mental age for each speed. These figures are found in ordinary type in Table II. These frequencies were then cumulated, beginning at the bottom, so as to include at each speed those cases who were equal to or better than that speed. These figures are not presented in the table but their percentages of the whole number at each mental age are given in black type. Thus, for example, at mental age 3, there are 3 cases whose speed is approximately 80 seconds; there are 17 cases whose speed is under 80 seconds; consequently 20 cases "do" the test in 80 seconds or better; these constitute 43 per cent. of all cases at mental age 3.

TABLE II.

Frequency distribution of form board speeds for 358 feeble-minded subjects of both sexes, arranged by mental ages. Figures at the left in each mental age column indicate the number of cases at the corresponding speeds. Figures at the right in each mental age column (in black type) indicate the percentage of cases for that age who succeed in a given time or better.

Mental Age	3	4	5	6	7	8	9	10	11
Seconds	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %
F	19 100	6 100	1 100						
180		2 86							
300			1 97						
270	1 59								
240									
225									
210									
195	1 57								

Mental Age	3	4	5	6	7	8	9	10	11
Seconds	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %
180	1 53		2 90						
170									
160	1 52								
150	1 50	1 82							
140		2 80							
130	1 48								
120		2 75	1 87						
115									
110		1 70		1 100					
105			1 84						
100	1 46								
95		1 68							
90		1 66							
85			2 81						
80	3 43		1 74						
75	1 37	2 64	1 71						
70		3 59							
65		1 32	1 68	1 97					
60									
58				1 95					
56	1 35	2 50		1 92					
54	1 33		1 65		1 100				
52		3 45			1 99				
50	1 30			1 90					
48	1 28				1 97				
46	1 26	1 39		1 87	3 95				
44		1 36			1 91				
42	1 24								
40	2 22	3 34			1 89				
38	1 17	1 27		1 84	2 88			1 100	
36	1 15	1 25	4 61	2 82		1 100			
34	1 13	3 23	2 48		4 85				
32	1 11		3 42	6 76	1 79				
30	2 9	1 16	1 32	1 61	1 77			1 95	
29		1 14	1 29	2 58		1 98	1 100		1 100
28		1 11		1 53	3 76				
27	1 4			1 50	3 71	2 96		1 91	
26		1 9		3 47	1 67	1 93			
25	1 2		1 26			1 91			
24				4 40	7 65	2 89			
23		1 7	5 23	3 29	1 55	2 86	1 97	1 86	

Mental Age	3		4		5		6		7		8		9		10		11	
Seconds	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
22					1	6	1	21	5	53	3	82					1	9
21							1	18	3	45	2	77	1	95				
20			2	5	1	3	1	16	5	41	6	73	1	92			2	83
19							1	13	6	33	6	63	4	90	2	81		
18							3	11	5	24	10	52	4	80	4	71	1	76
17							1	3	3	17	2	34	6	69	1	52		
16									1	12	9	30	12	54	1	48	2	71
15									5	11	6	14	4	23	2	43	4	59
14									1	3	1	4	3	13	5	33	1	35
13									1	2	1	2	1	5			4	29
12													1	3	2	10		
11																	1	6
10																		
No. Cases	46		44		31		38		66		56		39		21		17	

From this table one easily finds the 75 per cent. standards, which are as follows:

1. The test does not standardize at mental age 3.
2. Seventy-five per cent. of the cases at mental age 4 "do" the test in 120 seconds or better.
3. At mental age 5, 74 per cent. pass the test in 80 seconds or better.
4. At mental age 6, 76 per cent. pass the test in 32 seconds or better.
5. At mental age 7, 76 per cent. pass the test in 28 seconds or better.
6. At mental age 8, 73 per cent. pass the test in 20 seconds or better.
7. At mental age 9, 80 per cent. pass the test in 18 seconds or better.
8. The test does not standardize at mental age 10. for the approximate 75 per cent. standard is no better than that at mental age 9.
9. At mental age 11, 71 per cent. pass the test in 16 seconds or better.

10. Failure is characteristic of mental ages under 3.

These standards disregard sex differences which we have showed to be marked at mental ages 3, 4, 5, 6, and 10. But since the test does not standardize at 3 and 10 the error operates only at mental ages 4, 5, and 6. It seemed unwise to make a sex standardization for these three ages, especially in

view of the small number of cases. It should be remembered, however, that at these three ages girls may be expected to do better than boys.

Conclusion. Our study indicates that:

1. Average norms are not satisfactory in using the form board as a mental age test because:

- (a) Variability is high.
- (b) Sex differences are marked.
- (c) The norms are not valid after 7 years.

2. Diagnostic norms may be established on the basis of approximately 75 per cent. passing at given standard speeds.

3. These standards show that as a single test the form board is a test for:

- (a) Mental age 4 if done in 120 seconds or better.
- (b) Mental age 5 if done in 80 seconds or better.
- (c) Mental age 6 if done in 32 seconds or better.
- (d) Mental age 7 if done in 28 seconds or better.
- (e) Mental age 8 if done in 20 seconds or better.
- (f) Mental age 9 if done in 18 seconds or better.
- (g) Mental age 11 if done in 16 seconds or better.

4. These conclusions are limited to the cases studied but may be expected to apply to all mental defectives. It is possible that the mental ages for normals will prove higher by these standards than by normal standards.

We have computed diagnostic norms for successive chronological ages of normal subjects for years 5 to 14 from Sylvester's results, but they are not directly comparable with our own because of differences in apparatus and procedure. These computed norms when compared with the average norms and standard deviations for the same subjects do, however, bear out our main argument, namely, that diagnostic norms yield much clearer comparison standards than average norms for differential classification of individual subjects.

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Speed of
performance
in seconds

100

90

80

70

60

50

40

30

20

10

Male	Age	3	4	5	6	7	8	9	10	11
Female	Age	3	4	5	6	7	8	9	10	11
Male	Age	3	4	5	6	7	8	9	10	11
Female	Age	3	4	5	6	7	8	9	10	11

Curve 1. Mean average form board speed for 158 right-handed subjects by ages, arranged by mental ages.

4.6

Speed of
performance
in seconds

100

90

80

70

60

50

40

30

20

10

Mental age	3	4	5	6	7	8	9	10	11
Cases	46	44	31	33	66	56	39	21	17

Curve 2. Mean average from board speeds for 350 feeble-minded subjects of both sexes, arranged by mental ages.

4b

SOME FURTHER DEVELOPMENTS IN A PEDIATRIC DEPARTMENT OF A UNIVERSITY MEDICAL SCHOOL.¹

BY WILLIAM PALMER LUCAS, M. D., Physician in Chief of the Children's Department, University of California Medical School

The history of the growth of pediatrics in this country is an interesting one, starting as the subject did as a subdivision in medicine and developing gradually until in many medical centers it is now accredited as a separate department and offers in many schools positions for full time teachers of pediatrics parallel with positions in medicine and surgery. Its growth from a purely academic standpoint is of considerable interest and importance. At first the field of pediatrics was limited mainly to that of infant feeding and growth along this line has probably been greater and more efficient than in any of the other subjects in pediatrics. In almost every university medical school the subject of infant feeding has developed soundly and broadly, not only in the laboratory, in the hospital and the out-patient department but also in connection with milk stations and follow-up work. This growth has been rapid and gratifying to all those who have had an opportunity to follow the development in its entirety and such a growth should set the standard for the development of the other legitimate fields in pediatrics, for it is only by the unification of laboratory, hospital and social factors that any of the problems of child welfare can be worked out satisfactorily. The medical schools, even in this field, have differed in the emphasis put upon these three lines of development. In some schools the purely teaching phase has predominated while others have dwelt largely upon research work in infant metabolism and, again, the social work has lagged far behind. But from the field of pediatrics as a whole, certain high standards have emerged along all lines and not the least of these is the child welfare social work as is being carried on by the New York milk committee and by the pediatric

¹Revision of papers read at the Section on Preventive Medicine, Pan-American Medical Congress, San Francisco, June, 1915, and before the American Association for the Study of the Feeble-Minded, Berkeley, August, 1915.

departments of Harvard and Western Reserve Universities.

The emphasis upon infant feeding and the splendid development of the early problems of nutrition have led, at length, to a study of the periods of early and late childhood, and to the importance of dietetics in the prevention and treatment of disease during those periods of child life. It is just here that the pediatric department needs a close relation with the department of nutrition and dietetics in the university. It is a difficult matter in a large clinic to work out individual dietaries for patients, but with the assistance of trained dietitians and graduate students in dietetics it is possible in a hospital out-patient department to obtain more rapid and satisfactory results. The pediatric department on the other hand offers to the department of nutrition a practical laboratory, so to speak, filled with concrete problems, and thereby lends an immediate focus to the classroom work in dietetics and adds a field for practical experience.

The familiarity with and the studies in development and growth are constantly opening newer and wider fields for investigation and teaching. The realization of the relation of internal gland secretion to physical and mental development indicates that great progress in this field is to be expected. Recent studies in this field indicate many lines for research work which must be the ground work for future conclusions and which necessarily carry a purely medical department into fields better developed at present in academic departments. The importance of an early recognition of mental defectiveness or the early origin of mental disturbances arising during the period of adolescence demand a broader and more comprehensive handling of the subject than most medical schools are today prepared to give, owing to the fact that few medical men have had a sufficiently wide training in psychology. The academic department of psychology is prepared to give most valuable assistance to the subject of pediatrics. The abnormal psychology of the child and its physical manifestations and retardations are a part of the pediatric field which need the affiliation with the field of psychology. The out-patient department is constantly offering material for such united study.

The mentally defective child or the mentally retarded child is the reason furthermore for a certain line of development in medical social service which has spread rapidly throughout the country. The juvenile delinquent has brought into existence the juvenile court, and the juvenile court recog-

nized almost immediately that any service it might render the child must be based upon the medical and psychological study of the case and the psychological study does not end with the mental grading of the child. To stop there forces the court to act upon incomplete data. The psychologist must study the possibilities and potentialities of the child and be able as far as it is possible to interpret futurities in mental progress.

The further development of medical social work points very clearly to a close relation between the medical field and the academic department of social economics. The whole modern trend of medicine is toward a vital part in social and economic fields and the progress of medicine in those fields calls for a sound basis of development, and this means that the workers going into this field must be thoroughly trained from the medical standpoint as well as that of social economics. Unless such work is standardized and put upon a higher plane, the development in the splendid field of medical social service may be delayed and limited. To avoid this the direction of the medical social service department might come directly under the supervision and guidance of the head of the department of social economics in the university and such contact would bring before the heads of such departments the larger opportunities at their disposal for the training of their students. Such a plan is in operation now with the department of social economics in the university of California and the director of social service in the pediatric department of the medical school is not only a graduate in medicine but is connected with the department of social economics, thus uniting the two departments and offering to the advanced students in the academic as well as the medical department an opportunity to do field work as part of their social economic training. This scheme of inter-relationship ought eventually to produce workers with a good foundation not only from a medical standpoint but also from that of academic social economics.

The department of education is another natural point of contact with the pediatric department, as a large field of educational problems depends upon the mental potentialities of fairly large groups of children now attending public schools and the modern field of education has widened to include all children, normal and abnormal, and a hospital school for defectives would offer invaluable practice work for the department of education. The special pediatric clinic for speech de-

fects among children offers still further opportunities for teachers in training in the department of education.

The department of physical culture, occupying so large a place in all university life, would gain much in wider opportunities for the student by an interrelationship with the pediatric department and would give much to the development of that department's physical corrective field.

Thus far the pediatric department of the University of California Medical School has established a close relationship with three academic departments of the university; a trained psychologist is a member of the pediatric staff and at the same time holds a position in the department of psychology, the department of social economics already referred to and the department of nutrition and dietetics. The usefulness of these departments has been mutually broadened and the work of educating the necessary workers for these fields has been put upon a stronger basis.

The development of pediatrics has brought other more obvious relationships with the large community problems. Work in the contagious diseases and many of the infectious, which are more often met with in infancy and childhood than in later years, is receiving attention from the teaching standpoint as well as from that of research, which is necessary for healthy growth in any line. This growth is not nearly as advanced as it is along the lines of infant nutrition and development. However, with such work as the Rockefeller Institute and Hospital have contributed to these subjects in the control of meningitis and the study of infantile paralysis and pneumonia as well as the brilliant results obtained by the use of antitoxin and vaccination, growth along these lines has taken on a much broader aspect. To study these types of infectious diseases connection can be made between pediatric departments and local and state boards of health which are in constant touch with the larger community problems. It is only by a close co-operation of hospital and laboratory with medical school inspection and boards of health both local and state, that these larger questions of control of infection are going to be satisfactorily solved. It is, therefore, fitting that a state institution should interest itself in these larger problems relating to child welfare, a responsibility and duty which is inadequately met at present. The need for and advantage of co-operation between pediatric departments and all public and quasi-public institutions dealing with the problems of infancy

and childhood already have been demonstrated in many centers. There is hardly a large or well organized department of pediatrics which is not sought after for advice by children's institutions either for regular medical supervision or at least in times of sickness. The advantage of such relations with a department of pediatrics, rather than with individual physicians stands out clearly to all who deal with either side of this question. It gives the institution seeking aid uniform medical supervision and the advantages of laboratory and hospital equipment, which from individual physicians can be obtained only in an often unsatisfactory way or to a limited extent. Such institutions as infant shelters or homes for orphans or destitute children and children's charitable associations by having a definite connection with a pediatric department have not only the advantage of the usual medical inspection but should also have the advantages of all the other lines of activity controlled by the department, such as social service, investigation of children before admission to the institution, continuous medical supervision and psychological examinations.

A point of contact which very few pediatric departments have made and one which is of importance, especially in a state university, is with the juvenile court, state reformatories for juvenile offenders and state homes for feeble-minded children. This side of pediatric studies has been so far neglected by most American pediatricians. And as for the teaching of borderline psychopathic conditions and mental defectiveness, very few of even our first class medical schools today offer any satisfactory course in these subjects and as a result there are few investigators along this or any of these allied subjects.

The intimate connection between the problems of the defective child, the home and the school, as well as the problems of delinquency and economic efficiency, all combine to make a most attractive and important field for investigation. To carry on such work satisfactorily, a pediatric department should have a definite connection with institutions, city and state, which handle defective and delinquent children, such as the city schools for backward children, the state homes for the feeble-minded and the juvenile court. The pediatric department of the University of California Medical School has established a close affiliation with the juvenile court where all cases of dependency and delinquency receive, not only a physical examination but also a mental examination, on the basis

of which a court report and recommendations are made. Only by such close connections can these problems be worked out satisfactorily both for the individual and the state.

An even wider application of this work can be carried out by connection with our school boards, making composite studies of various schools where the problem of the backward child, of children who present various educational problems, arise. Such a problem as that of children coming from the immigrant class is especially important not only from a psychological standpoint but also in the working out of a better school curriculum on a broader psychological and educational basis. Such studies are at the present time being carried on through a co-operative scheme between the board of education, the department of medical school inspection and the pediatric department of the University of California Medical School. A report of some of these studies will be made later but their importance will be evident to anyone who has a realization of this field of child welfare work.

Further points of contact between a pediatric department and the larger problems of childhood would be a more intimate connection with the recreational and vocational problems which are now being studied in all progressive communities. Unless the medical educational centers take an interest and co-operate in such fields of progressive endeavor our development will necessarily be more or less one-sided. Of course, in a pediatric department, teaching students the development as well as the diseases of infancy and childhood is first and most fundamental, but no pediatric department should feel satisfied to stop in its growth by simply developing its teaching and research work. The larger community problems should be taken up as one part of our complete growth.

Therefore, it is incumbent on medical schools to offer just as wide and practical a field to their students as possible and for the future physician the broader the contact with concrete problems during his period of training the sooner will he be able to make his own definite contribution to medical life as he in turn meets it in the home, school, hospital and community. For the physician today who goes out of our medical schools without realizing some of the broader applications and fields of usefulness now open to medicine, is not only incompletely informed as to the modern trend of medicine but is also handicapping the advance of medicine as one of the great educational and social factors in the development and betterment of our race and humanity.

THE SCHOOL AS A FACTOR IN THE MENTAL HYGIENE OF RURAL COMMUNITIES¹

BY TALIAFERRO CLARK, Surgeon, U. S. Public Health Service.

It is now generally conceded that inherited characteristics and environmental influences are the leading factors in the development of the intelligence and maintenance of mental stability. It has not been determined, however, which of these is the more responsible cause of mental deficiency. The school offers ready opportunity for the study of these influences. A practical solution of the question seems possible by the study of large numbers of growing children, both normal and sub-normal, under similar conditions such as are to be found in schools, and by making the results of these observations a part of the school records available for future reference, in the event of the subsequent development of a psychosis among them.

Our personal experience has been largely with psychological problems arising in connection with developing school children in rural communities. In the course of the investigations of school hygiene by the U. S. Public Health Service during the past year and a half, mental examinations were made of over 18,000 school children in four states. Nearly all of these children resided in rural districts. The studies, therefore, relate more particularly to the rural school child.

Retardation. The problems observed during these surveys which require solution, while closely related to those arising in urban communities, present characteristics distinct from them. The most outstanding of these problems from the standpoint of mental hygiene, by reason of the close association of simple retardation and permanent mental deficiency, are those connected with the large number of mentally retarded children encountered.

All the data collected which bear on this relationship have not been compiled, owing to the fact that these studies are still in progress. Compilations have been made, however, in the case of the rural school population of one county in Indiana. The average daily attendance in the rural schools of

¹Read in the Section on Insanity and Feeble-Mindedness, National Conference of Charities and Correction, Indianapolis, Indiana, May 15, 1916.

this county was 2,512. The number of children who were examined mentally was 2,185. The results of these examinations should be representative of the district in question. Of these 2,185 children, 8.7 per cent. were retarded as follows: Children of six and seven years of age who were retarded two years; eight and nine years of age, two and three years; ten, eleven and twelve years of age, three and four years; thirteen and fourteen years of age, four and five years; fifteen years of age, five years; and sixteen to seventeen years of age, who were retarded six years mentally.

The average retardation of these children in school work, as graded by teachers was 1.28 years for girls and 1.5 years for boys. In other words, the total retardation in school work amounted to 268.27 school years.

Furthermore, intensive studies were made of the physical condition and school environment of these children. The following physical defects were recorded: Of the retarded girls, 35.5 per cent. were undersized compared to the county average, 58.8 per cent. had noticeable visual defects, 26.4 per cent. had defects of hearing, 17.6 per cent. had two or more defective teeth, 2.9 per cent. had enlarged tonsils and an additional 1.7 per cent. had enlarged tonsils associated with adenoids. Of the boys, 38 per cent. were undersized, 47 per cent. had noticeable defects of vision (of which number 19 had confused color sense), 34 per cent. had defective hearing and 6 per cent. had adenoids and enlarged tonsils.

These children were not feeble-minded. A clear distinction must be made between these two conditions for a proper appreciation of the role of retardation in mental deficiency. The rate of intellectual development varies at different age periods. In very young children the rate is relatively rapid. In fact, it can be easily observed without special methods. As the child grows older, however, the progress of intellectual development from year to year is less easily detected, so that, between the ages of twelve and thirteen, it can not be recognized. In the case of older children, therefore, the correlation of retardation and permanent mental deficiency is relatively easy. In other words, the greater the discrepancy obtaining between the chronological and actual mental ages, the more definitely it may be asserted that the child is feeble-minded,—that his intelligence will never be greater than that of a child when he becomes an adult. This is due to the improbability that a great amount of retardation will be overcome in a short time

intervening before maturity and at a lessened rate of intellectual development at the older age periods.

In the case of very young children, however, one of two things may take place. First, the retardation may be only temporary. The annual increments of intellectual development may be so great as to overcome the retardation in the longer period that must elapse before maturity. On the other hand, intellectual development may remain stationary, or develop so slowly that the individual still presents the mentality of a child when the adult stage is reached.

Influences Causing Retardation. Rural children are exposed to influences causing retardation that are quite distinct from those affecting children in urban communities. Broadly speaking, these influences may be considered from the standpoint of (1) sanitation and (2) education.

1. School surveys have shown that 12 per cent. of the population in certain sections of our country is afflicted with trachoma. The amount of mental retardation observed in these sections is very great, due to the fact that the damage to vision caused by this disease hampers intellectual training.

It is known that there are many thousands of people suffering from hookworm disease in this country. It is common experience that children suffering from hookworm infection show evidences of mental retardation.

Mental retardation also is frequently associated with certain nutritional disorders. Of particular interest in this connection is pellagra, which is known to be largely a nutritional disorder due to an improperly arranged dietary. It is estimated that there are 75,000 people in this country who are suffering from pellagra, a large proportion of whom are children. Not only is this disease associated with mental retardation, but from four to ten per cent. of pellagrins eventually become insane.

Finally, certain physical defects, especially those involving the organs of sight and hearing, operate to cause retardation. Failure to provide for the health supervision of the school children, so common in rural communities, is largely responsible for the continuance of these defects which react injuriously on mental functioning.

2. Of the educational influences operating to cause mental retardation may be mentioned the school environment, the sanitation of the school building, the arrangement and equipment of classrooms, the maintenance of too many chil-

dren of different grades in one room schools and faulty teaching methods. Eighty-nine per cent. of the rural schools inspected were one-story structures, and 57 per cent. were more than twenty years old. Adjustable desks were found in only 9.5 per cent. of the classrooms, 41.1 per cent. were heated by closed stoves, 27.6 per cent. were without aids to ventilation and the admission of daylight was from the right direction in only 42.2 per cent. The bad effects of improper heating and ventilation and faulty illumination are reflected by the large number of retarded children observed in connection with the school facilities of the county.

Finally, retardation is itself a cause of retardation. The home environment and the mental attitude of parents who are themselves retarded are potent factors in the mental retardation of their children. Furthermore, the presence of a number of retarded children in a class exerts a hampering effect on the mental advancement of the class as a whole. This condition is very common in rural schools, due to the absence of facilities for the formation of special classes for the training of children in need of individualized instruction.

The Significance of Simple Retardation. From the standpoint of mental hygiene, the great significance of simple retardation lies in its parallelism to inferior grades of mental deficiency. Mention has been made of the numbers of retarded individuals observed in communities where certain endemic diseases and nutritional disorders are common. When a child retarded by hookworm disease has been cured, he has promptly passed to a higher grade. Again, instances are not lacking that the longer the infection persists in these cases the more permanent the effects of retardation are likely to be from the standpoint of both physical and mental development. It is clear, therefore, that constitutional conditions operating to produce mental retardation, unless removed, may finally bring about permanent mental impairment.

Of more general interest, however, because of the more extended field of operation, is the role of retardation from causes not clearly understood in inducing feeble-mindedness. The investigations of Holley show that the tendency is for men and women to marry those who are approximately on the same educational level. The intermarriage of men and women who have become discouraged through retardation and quit school with but meagre educational attainments is quite common. The poor judgment so noticeable in individuals of this

type, the weakened will, the ready yielding to desires frequently bring about unfortunate marriage selections, the formation of vicious and intemperate habits, an increase in venereal affections, are influences largely responsible for social and economic conditions provocative of feeble-mindedness.

Feeble-mindedness. The percentage of feeble-minded persons in the general population is not known. It has been placed as high as four per cent. by some observers. In this respect each community is a problem in itself. That is because of the modifying influences of immigration and geographical location on heredity and environment.

The percentage of feeble-mindedness observed in the course of the investigations by the Public Health Service varied from .3 per cent. to 1.1 per cent., according to locality.

The results of the physical examination of these feeble-minded children were at considerable variance with those of other observers who are frequently quoted. For example, underphysical development was not found frequently associated with exceptional retardation (feeble-mindedness). In the case of feeble-minded girls, 57 per cent. were above the average physical development determined for the county, and 42.8 per cent. of the boys. Furthermore, 14.2 per cent. of the girls had defects of hearing, 42.8 per cent. had visual defects, and 2.9 per cent. had enlarged tonsils. Of the boys, 34.2 per cent. had defects of vision, 57.1 per cent. defects of hearing, and 7.1 per cent. enlarged tonsils. These observations seem more in accord with what might be expected in the case of feeble-minded children. It is natural to suppose that children of this type vegetate,—grow rapidly in a fairly good environment.

Constitutional Inferiority. A boy was recently observed in a rural school who was noisy, vain, said to be cruel to animals, inclined to impose on younger children, given to lying and petty pilfering. Children of this constitutionally inferior type are of average intelligence, but quite early in life they show evidences of a perverted moral sense that makes them potential criminals in a bad environment. The number of such children found in any one community is not large, nevertheless they are found in numbers sufficient to make them a serious problem from an educational and sociological standpoint. Especially is this true in rural communities where compulsory school attendance is required by law, but

where no provision is made for the care and training of defective children.

Owing to the tendency to imitation exhibited by young children, the compulsory school attendance of the constitutionally inferior is a menace to the morality of the community far greater than seems to be warranted by their number. The presence of such children in the general classes is undesirable, yet it is unwise to throw them back on the community without the hope of restraint or future training. To do so will but crystallize vicious tendencies that make them a menace to society. The school offers that ready opportunity for the early recognition of children of this type which is so desirable for the successful application of the necessary measures for their training.

Insanity and Epilepsy. Several insane children and a number of other children showing a marked psychopathic tendency were noted during our investigations. The occurrence of insanity in children has received but little recognition until within comparatively recent years. The early recognition of psychopathic tendencies is of vast importance from the standpoint of mental hygiene. It must be remembered that children who exhibit these tendencies have sick minds, just as other children have sick bodies, which require appropriate treatment. Ultimate recovery in cases of this kind depends largely on the prompt recognition of symptoms and early application of remedial measures. Continued studies of this character is demanded to show the necessity of this form of health supervision for the protection of the mental health of communities.

An appreciable number of epileptic children were also observed in the course of these investigations. The epileptic school child requires careful supervision because of the not infrequent occurrence of temporary mental disturbances in close association with an attack, during which serious bodily injury may be done to other children. Here, again, rural districts are sadly handicapped by the absence of medical school inspections and facilities for the care of epileptic children.

Utilization of the School to Promote Mental Hygiene. Our investigations have demonstrated the value of the school as an instrument to promote the mental health of rural communities, and have indicated a number of ways in which it may be utilized for this purpose. Of these may be mentioned

measures intended (1) to determine the prevalence of mental deficiency, (2) to promote rural sanitation, (3) to train the individual child in the formation of correct habits.

1. Our experience has shown that it is necessary to confront the average rural community with a specific problem before the co-operation of the whole community can be obtained in the application of measures intended to meet a particular situation. It is of prime importance, therefore, to determine the number of mental defectives in a given community before it can be induced to take steps to make suitable provision for their care. By reason of the close association between the school and the home, the mental examination of all school children offers a practical method by which the prevalence of mental deficiency may be determined. It is very desirable in this connection, however, to adopt uniform methods of procedure. For example, the considerable variation in the percentage of feeble-mindedness in the general population, as given by different observers, is too great to be accounted for by differences in local influences. These variations are due, in large part, to (a) the absence of a definite recognized feeble-minded "complex" and (b) the need of practical uniform tests of certain mental functions.

The proper classification of persons who are patently feeble-minded is not difficult. It is a far different proposition in borderline cases, however, to say just when retardation ceases and feeble-mindedness begins. There is need for far greater diagnostic precision in these cases than obtains under present conditions to bring about uniform results. As it is, the classification of a number of borderline cases depends largely on the personal equation and experience of individual observers.

Furthermore, our investigations have shown the desirability of employing psychologists having biological training to conduct examinations of this character. In studies of mental deficiency a distinction must be made between acquired mental defects and those that are transmissible. For example, children who become defectives through traumatism, severe organic lesions, and the more or less prolonged action of certain infections and improper dietaries are not defectives in the true meaning of the term.

2. Not only does the continued presence of endemic diseases entail great economic loss to communities where they prevail by reducing the physical efficiency of a great part of

the population, but they are accompanied also by a similar reduction in mental efficiency. These harmful influences continue to exist because of the general lack of information so common in rural communities concerning their cause and prevention. In a number of instances it is a difficult matter to secure the co-operation of the adult population, which is set and fixed in its habits, in measures to improve the community health. Health supervision of school children not only gives valuable information concerning the prevalence of these conditions, but it also exercises an educational effect on the rising generation, through whom the sanitary redemption of these communities is largely to be brought about.

The control of hookworm disease is a matter of personal hygiene and community sanitation. The school is an effective agent for the demonstration of measures for its control, and in addition offers exceptional facilities for the early detection and prompt cure of hookworm sufferers so necessary to prevent permanent mental impairment.

Mention has been made of the effect of poor nutrition on mental development in connection with pellagra. The ill effects of faulty feeding in infancy and early childhood on the physical and mental health are well known. It was not discovered until recently, however, that food value means much more than its estimation in terms of calories. It is now known that a diet sufficient to supply the demands of normal metabolism must contain a due proportion of a recently recognized substance to which the name "vitamine" has been given. This substance occurs in very small amounts and in varying proportions in differing food stuffs, a fact that must be taken into consideration in arranging a dietary for the prevention and cure of nutritional disorders. The mental hygienist is deeply interested in the school from this standpoint, therefore, as a factor in the prevention of these disorders through the teaching of food preparation and food values, and the extension of this knowledge to the home.

3. It has been asserted that a large percentage of school children are predisposed to mental "complexes" usually found associated with what are now considered functional disorders of the mind. Incorrect habits of thought and feeling in the child, unless corrected, are possible causes of the failure of the child later in life properly to adjust himself to his environment. We have observed children in such numbers in rural communities who present one or more of

the symptoms usually enumerated as forming a mental "complex" that grave doubts are raised as to the correctness of this general form of a *posteriori* reasoning. Certainly there is need of something other than indefinite statements regarding the relation between personality and psychoses. The most practical plan for supplying this want, I believe, is the study of personality in developing school children somewhat after the plan outlined by Hoch. Data so collected and filed for future reference will be of the greatest value in the correlation of certain mental traits and psychoses appearing in later life.

Studies of this character also serve to draw attention to the milder forms of abnormality which, when neglected, crystallize into faulty habits productive of grave consequences to the mental health.

To be effective the teaching of correct "habit formation" should begin in the home at an age earlier than that represented by the school period. Unfortunately this is not of general application in most rural districts, where the tendency to the formation of incorrect habits is largely due to the comparative isolation of families, the limited association with persons of superior training and the lack of contact with the broadening influences of the outside world. The school, therefore, stands in very definite relation to such communities in supplying the training to prevent and overcome faulty habits that so materially reduce individual efficiency.

HOW TO FILL THE GAP BETWEEN THE SPECIAL CLASSES AND INSTITUTIONS'

BY ADA M. FITTS, Supervisor of Special Classes, Boston, Mass.

The problem of feeble-mindedness is very much before the public, and everywhere in this country, community surveys, the use of mental tests and studies of family histories are furnishing evidence that the feeble-minded are an increasingly important factor in all forms of social and educational work.

Along with the other agencies that are interested in finding a solution to this far reaching problem, the public school authorities have become aroused and are providing classes which it is hoped will furnish training for pupils who are not able to make good in the regular grades. Before discussing my subject: "How to Fill the Gap Between the Special Classes and Institutions," I wish to review what the public schools have attempted to do in preparation for this time of leaving school. It is generally believed that the special class is the first step in the attempt to solve the problem. Its function is first: to educate the community and the teachers of normal children to realize the situation; second: to seek out the feeble-minded children and help them, and by so doing, help the normal children who have been retarded; third: to relieve the teacher who gives perhaps thirty per cent. of her energy to the few feeble-minded pupils she may have. This energy is taken from her normal pupils and does not materially benefit the feeble-minded, as only in the special class can we do our best for these children; fifth, to secure justice to society, for it is a matter of social justice that the feeble-minded be recognized and trained as far as it is possible to do so.

The pupils should be selected by a trained expert who uses a combination of tests and who will win the confidence of parents as well as give a diagnosis of the child's mental and physical condition. In many places the high grade improvable feeble-minded children have been selected by such experts and

¹Read at the National Conference of Charities and Correction, Indianapolis, Indiana, May, 1916, and at the National Educational Association, New York City, July, 1916. This paper will appear in the "Ungraded."

then placed in classes under the direction of trained teachers. The number of pupils in a class is wisely limited to fifteen to a teacher, and through individual work she tries to fit her pupils for adult life. Special classes take feeble-minded children as early as possible—say—from seven to eight years of age. Some eventually return to grade and are able to complete a part of the fourth grade work; a few more are transferred directly to the institution; but the majority should remain in special classes till they reach the school age limit.

Three methods have been adopted: first, to have the special class occupy a room in an elementary school building and care for the mentally defective children of that immediate district; second, to group these pupils in a central school; and third, a combination of both individual classes and centers. In Massachusetts until recently, children were allowed to leave school at fourteen, but with the raising of the compulsory school age limit to sixteen, we found ourselves (two years ago) face to face with the problem of what to do with the special class children who must remain in school until they are sixteen years of age. In Boston in order to provide the next necessary step beyond the individual class, the regular grade pupils occupying two six-room buildings, were accommodated elsewhere and these buildings were used as centers—one for special class girls and another for special class boys. Pupils for these centers were selected from individual classes all over the city (one or two from each) as their fitness to profit by this special advantage was recognized. The separation of the sexes has proved to be of distinct advantage both to pupils and teachers, thus adding to the efficiency of the work. Little difficulty has been experienced thus far in transportation over long distances, the city paying the car fares.

At the centers advanced manual work is begun and grading and classification are possible. The program is so arranged that each child has one and one-half hours physical, one and one-half hours academic, and two hours manual work each day. The girls are given a trained teacher to instruct them in domestic science, millinery, sewing, embroidery, crocheting, knitting, mending and preserving. The boys are taught brush making, boot blacking, wood working, serving of lunches, dish washing, simple tailoring, gardening, assistant janitor work, and other forms of comparatively unskilled labor. In this way we attempt to carry on the training of special class children from seven to sixteen years of age.

The special class, in my opinion, should be still further supplemented by work rooms where, under favorable conditions, pupils over sixteen may be provided with work for which they would be paid. Cobbling, chair caning, tool sharpening, brush and mat making, are industries which might be carried on profitably. They could thus be guarded and controlled in part without being taken from their homes. This brings up the question of how long the public schools should assume the responsibility of these children beyond the school age limit. It seems to me that it should do so for another year or two at least, unless there is some other agency ready to do the work. The school funds are used for work with adults in continuation and evening schools and centers—why not for the much needed work with the feeble-minded?

The most important factor is the teacher who presides over the special class. She must be one who is quick to perceive, able to adapt, whose sympathies are keen and whose outlook is broad, but who combines with these gifts, steadiness of purpose and the power to raise and hold her pupil to his best. A sense of humor will help out in many a situation. In Boston the teachers are given time in which to visit the children's homes, learn the conditions and confer with the parents. The teacher knows how much freedom can safely be given the child; she knows his limitations and when work is undertaken for which he is not adapted, she is able to suggest other lines. She could keep in touch with him and advise him as need arose, if she had the time; but the demands of her classroom are all that should be asked of her strength. In some cities, visiting teachers whose function is that of social workers, have done this work most acceptably.

Most will agree that the ideal condition would be for many of the mentally defective to go from the school directly to the institution, and thus safeguard the public from inefficiency, unemployment, pauperism, vagrancy, degeneracy, and all the other social consequences of feeble-mindedness. Since this is impossible, we must attempt to fill the gap between the special class and the institution by providing a system of after-care for the feeble-minded who are forced to compete with the normal in the working world. As has been said, "It is not sufficient for society that the subnormal should be properly trained in school; it is the business of someone to see that they meet the difficulties of the earn-a-living world. It is of small use to train laboriously in school for shop or farm and

then see the graduate enter messenger service or other unskilled and spasmodic labor. Pioneers are needed to make this new adjustment, to study the situation, plan for it, and to enter into it. It is time for them to think together, plan together, and for others to help put the results of the deliberation into operation."

The child may have been prepared for appropriate employment, but he cannot be given the necessary power of self-direction. The subnormal person (young or old) does not have that guiding power within; he must have outside control that should never be relaxed. The need is for a person or persons who will provide this oversight and follow the career of each individual, continuing the guidance begun by the teacher. He should be closely connected with the representatives of various educational, religious, philanthropic, civic and medical organizations. This person should be strong, tactful, persistent, one who has been a teacher of mentally defective children and also, if possible, with training as a social worker. The after-care work would naturally divide into two parts: first, the obtaining of information about pupils; second, oversight of pupils at work and knowledge of where suitable positions can be secured. In order to do this it would be necessary to canvass the employers of comparatively unskilled labor to arrange to have notifications sent the officer when there are vacancies to be filled.

Miss Bridie, assistant superintendent of special schools in Birmingham, England, has sent me the following information concerning the way in which suitable positions are being secured for pupils still of school age:

"We have two Parliamentary Acts dealing with the mental defectives:—first, The Defective and Epileptic Act of 1899 which deals with all such children who are capable of education. Roughly speaking we take no children who test less than IV by Binet and keep none who reach XI by Binet; second, The Mental Deficiency Act of 1913 which deals with all mental defectives below seven years, over sixteen years and all who are too low grade to be educated in any school.

"The anticipated procedure when the act was passed in 1899 was that all children would remain at school till sixteen and be passed on to the Mental Deficiency Committee at once, either for supervision, guardianship or institutional care. Unfortunately the wording of the 1899 Act was so loose, that certain children may leave school subject to the approval of

a special subcommittee, but if they are allowed to leave before sixteen, the Mental Deficiency Committee accepts no responsibility for them unless arrested or in serious trouble. Now at the present time there is a frightful scarcity of labor and it seems a pity to keep in school sturdy boys and girls who are needed by their country and who could earn good money in their homes.

"Moreover, it is a very difficult thing for anyone, doctor, teacher, or superintendent, to say definitely whether these children will do well in the wide world or not, until they have been tried. Now, here comes our scheme: We have chosen a large number of good, reliable firms of all kinds in different parts of the city: carpenters, lunch positions, gardeners, wire workers for the boys, and for the girls: laundry work, leather stitching, pinafore making, paper bags, etc. These are called **approved firms** and they are willing to treat any of our children just like other workers and with the same rates of pay. They will also permit a teacher to visit the child once a month in order to see his work and confer with the foreman as to the child's progress.

"At the half-yearly examination I confer with the head teacher and we choose the most suitable children who may be considered as eligible for this trial; we select the most suitable firms and communicate with the manager. The parent is then seen and the offer is made to her: 'Under the Act we have the power to keep your child at school until sixteen years of age, but, as he being over fourteen years of age, seems to be suitable and fit to care for himself and do reasonably good work, we are willing to allow him to leave school on condition that he goes to work at a place we choose for him and that he remain in that place until he is sixteen. If he fails to do this or to give satisfaction to his employers, he must immediately return to school and stay until he is sixteen.'

"The advantages of this method are many. Chiefly we have tested the child to see if, working under good conditions he will be able to keep a situation and give satisfaction. The employers are as a rule pleased because they know that they will get the child's best work and that they can return him to school if he proves unsatisfactory, while the visiting teachers will see that the child is not put upon and has suitable work. No child is ever allowed to go to work under fourteen years of age, and most of them are fourteen and a half and fifteen years old. They are only the best and highest grade of chil-

dren that we have. If a child cannot keep his situation and give satisfaction, he returns to school; it may be that he is tried again with another firm and again fails. All the children who are kept till sixteen (that is the least responsible and worst cases) are referred to the local authority under the Mental Deficiency Act. Moreover, we are able to tell which of those on trial with firms are likely to continue working under slight supervision which must also be recommended to the local authority. Of course this scheme is quite new and is just a tentative way of bridging the gap."

This experiment in Birmingham is suggestive to those who have the same problems to work out.

Let us consider what becomes of these children who leave school and who are not provided with such after-care. In a recent canvass of the situation in Boston, sixty-five of the special class graduates were located and their working history reviewed.

From September, 1913, to September, 1915, (two years), 31 out of 65 had a working history of over $1\frac{1}{2}$ years and less than two years.

Eleven out of 65 had a working history of over one year and less than $1\frac{1}{2}$ years.

Ten out of 65 had a working history of over six months and less than one year.

Thirteen out of 65 had a working history of less than six months.

To be sure, one of these with a working history of nearly two years, had had eighteen positions. One she had held for one day only and the longest time was three months. In her case, these two years covered the time from seventeen to nineteen years of age. The positions secured by this group of sixty-five required but little skill; the list includes bundle girls and boys in dry goods stores, delivery boys, office boys, nurse girls, peddlers, workers in brush making, shoe blacking and basket making establishments, carpet factories, rubber factories and laundries; while working in candy factories is a favorite employment. This gives a clue to the kind of positions that are open for the mentally defective, and with these in mind, the after-care officer should know of vacancies as they occur and attempt to fill them.

In Springfield, Massachusetts, the following information is valuable with reference to 135 pupils enrolled in public school special classes from May, 1898, to December, 1915,

(17 years). There was a total enrollment during that time of
 91 boys
 44 girls

135

Of this number there were enrolled in the two special classes Dec. 1, 1915.....	30
Enrolled in the grades of children promoted from the special classes	11
Deceased and removed from city	22
Married	1
Status unknown	5
Total	69

Data with reference to the 66 pupils not included in the above:

Enrolled in state institutions, Dec. 1, 1915, 16 or	24.2 per cent.
Regularly employed	29 or 43.9 per cent.
Irregularly employed	10 or 15.2 per cent.
Unemployed	11 or 16.7 per cent.

Total	66 or 100 per cent.
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In a preliminary report published December, 1915, on children discharged from ungraded classes in New York City, Miss Farrell reports on 350 pupils who have been out of school from one to eight years. Of this number:

54.8 per cent. were employed for wages.

8.8 per cent. were employable but temporarily out of work at the time of the investigation.

24.6 per cent. were cared for at home and many of these at home had economic value.

In the three cities cited, all children in such classes have been certified as mentally defective by qualified psychologists and physicians.

The results of the follow-up work that has already been done and the fact that so large a proportion of the children are employed for wages, lead one to feel that the work done by the special class does carry over into their after life. Dr. Wallace of the Massachusetts School for the Feeble-Minded at Wrentham writes: "We have especially observed these children and believe they are more advanced according to their mental condition, manifest much better habits and their social relations in the institution are much better than the reaction of children admitted without the special training."

At the Massachusetts School for the Feeble-Minded at Waverley, Dr. Fernald is making a careful after-care study of all the patients who have been discharged from the school for the past twenty-five years. He says: "Wherever it is possible our field workers have visited these patients and the fullest inquiry has been made as to the kind of life they have lived since leaving the institution. The inquiry was planned primarily to furnish a basis of evolution as to the practical results given at the school. The inquiry also sought information as to the social, economic and moral life of the feeble-minded individual in the community."

The results of this and similar studies will enlighten us as to the training best suited to prepare the child for adult life in the community. Beside the special class and after-care officer, there should be a definite plan of awakening community interest in the problem of the feeble-minded. Springfield, Massachusetts, has such a plan and in order to supplement the work of the psychological laboratory and the special classes, the Committee for the Study of the Feeble-Minded was formed in December, 1912. I quote from a recent report of Miss Cheney, the chairman of the committee, and a special class teacher of Springfield. The membership and purpose of this conference are outlined as follows:

"Active Members. Those actively engaged in individual efforts to educate and protect the feeble-minded.

Associate Members. Representatives of various educational, religious, philanthropic, medical and civic organizations, who may confer with the active members at all times and in semi-annual conference.

Purpose. 1. To discover and record cases of mental defect in the community.

2. To persuade parents or guardians to place improvable cases in public school special classes or in private schools for atypical children or in state institutions for the feeble-minded, for education.

3. To interest employers in protected mentally defective persons who may have acquired the ability to perform skilled or unskilled labor.

4. To endeavor to remove from the community all **unprotected** feeble-minded persons to the permanent custodial care of state institutions.

5. To hold meetings at the call of the chairman.

6. To keep a confidential card catalog with records of each case.

7. To record such facts in connection with mental defect as may shed light on the general problem, and to cultivate an interest in determining the causes of mental defect and the means of prevention.

8. To help mold public opinion to the need of providing opportunities for the education of the feeble-minded to the limit of capacity, and to the dangers of unprotected feeble-minded persons in the community.

During the three years of its existence, this committee has recorded 296 cases of definite or suspected mental defect. It has been actively engaged in arousing public opinion as to the need of further local and state provision for the feeble-minded and in securing support for legislative action, to provide a third institution to be located in western Massachusetts.

The committee maintains that the care of the feeble-minded need not fall wholly upon the community or the state, that the burden may be shared by the co-operation of both, with the purpose of providing not only education and protection for the feeble-minded, but of preventing the increase of mental defect and its attendant social evils."

Such a committee should also help to secure a law authorizing the permanent control and custody of the defective delinquent. These cases should be eliminated from our prisons and correctional institutions and cared for by themselves. The committee might also co-operate in establishing in the vicinity of their city, farm groups which would serve as training schools. Through visits to such schools the parents might overcome their prejudices to institutional life and later, if necessary, consider permanent custodial care for their children. Such a group could provide supervision and also be a clearing house for those who develop the need of institutional care. Several states have already in the farm colonies connected with their institutions, such a combination of training school and permanent home. There the boys, many of them able to do the whole or part of a man's work under direction, are utilized to develop absolutely worthless land into valuable soil ready for cultivation. If the farm colony can be used to such good advantage by the institutions, it would seem possible to secure good results from a similar colony under the direction of school authorities and a committee similar to the one at Springfield.

As the problem is recognized and public opinion created, it becomes evident that these individual community efforts should be systematized and have supervision. As so well

stated by Dr. Fernald at the National Conference of Charities and Correction, Baltimore, 1915, "Many feeble-minded persons eventually become permanent public charges. Many run the gauntlet of the police, the courts, the penal institutions, the almshouses, the tramp shelters, the lying-in hospitals, and often many private societies and agencies, perhaps—eventually to turn up in the institutions for the feeble-minded. At any given time, it is a matter of chance as to what state or local or private organization or institution is being perplexed by the problems they present. They are shifted from one organization or institution to another as soon as possible. At present there is no bureau or office with the knowledge and the authority to advise and compel proper care and protection for this numerous and dangerous class." With a complete census of the feeble-minded, community interest, the help and co-ordination of existing records, and the co-operation of all existing agencies, the state with such supervision would be dealing with the problem of feeble-mindedness in a broad and constructive way. The bureau would then be in a position to make a comprehensive study of the whole situation and make suggestions which, carried out, would affect future generations.

With the development of state supervision would come a greater demand for the co-operation and help of such societies as the National Committee on Mental Hygiene and the National Committee on Provision for the Feeble-Minded.

In order to "fill the gap" or better in the words of Dr. MacMurchy, to "build a bridge" between the special class and the institution, I have suggested first: that the public school insure diagnosis and treatment at an early age, act as a clearing house for cases needing permanent segregation, and attempt to train the others for appropriate employment; second: that the pupils upon leaving school be still further provided for in workrooms or in farm groups; third: that the guidance begun by the teacher be continued by after-care and supervision; fourth: that there be a definite plan for awakening community interest in the problem; fifth: that state-wide supervision is necessary; and finally: that the National Association for the Feeble Minded formulate a program both educative and constructive, so that the nation as a whole may realize the "menace of the feeble-minded."

With definite knowledge and mutual co-operation much can be done to bridge the gap between the school and the institution.

THE BORDERLINES OF MENTAL DEFICIENCY.¹

By SAMUEL C. KOHS, Psychologist, Chicago House of Correction.

OUTLINE.

- I. Introduction
- II. Is feeble-mindedness an arbitrary designation?.....
- III. Overlapping
- IV. Borderlinity
- V. Practical Considerations: Psychological and Educational.
- VI. Summary
- VII. Bibliography

I. Introduction.

Disagreement, in the early development of any field, often makes for progress. Unanimity at that time is inherently conservative, and may frequently lead to stagnation and regression. We owe our advance today in literature, art, science and ethics, to the few who have dared to differ. Difference of opinion is inherent in a growing realm of science. It is therefore no unnecessary defect to find great variance in the interpretation of the facts of any natural phenomenon, especially if some of its aspects are social. The one-hundred years' history of the study and treatment of mental deficiency amply reveals the undercurrent of this progressive tendency. Of late, differences have perhaps increased because of the refinement of general methods by which the feeble-minded may be diagnosed, and as a result of attempts to define, explain and report the problem more accurately. Some authorities define mental deficiency one way, others define it some other way; some claim that the phenomenon is biological, others that it is social; some have little if any use for the Binet scale, others swear by it; some claim one per cent. of the population to be feeble-minded, others drop as low as one-tenth of one per cent; some claim that only five per cent. of delinquents, prostitutes, paupers, possess defective mentalities, others state that the number is as high as 60 per cent., if not higher. No doubt one of the many factors underlying these apparent disagreements is our slow recognition and paucity of information regarding the character and behavior of borderline types. The

¹Paper delivered before the joint meeting of the National Conference of Charities and Correction and the American Association for the Study of the Feeble-Minded, Indianapolis, May 17, 1916.

aim of this paper will therefore be to discuss the question of borderlinity as related to the problems above mentioned.

Throughout this discussion it is, of course, understood that the Binet scale is relied upon for the estimation of intelligence age,—mental retardation being calculated on that basis.

II. Is Feeble-Mindedness an Arbitrary Designation?

The examination of a large non-selected group for some variable trait will reveal a continuous distribution of a characteristic type. For example, measured for standing height, 3,000 individuals would fall into different groups, those of smallest stature being at one end of the distribution, those who are tallest at the other end, and those in the intermediate group being by far the most numerous. We may arbitrarily take some measurement such as 4 feet 6 inches and call all adults measuring less than this height defective in standing height. That this standard is absolutely arbitrary none will for a moment deny. Whatever your "tag," in this case, whether it be "defective in standing height," "subaverage," "abnormally short," "retarded in growth," "normal for his own group," or whatever else, it does not alter the fact that the individual may still be healthy, alert, capable, possessing full power for normal environmental functioning, by which is meant possessing sufficient mental endowment to consciously adapt himself to environmental conditions, economic, social or ethical. Some of us, however, are inclined to carry over this analogy into the realm of amentia. It is a simple matter for the critic to state that just as the measurement "4 feet 6 inches" is arbitrary, so also is "3 years behind in chronological age." And again, that it is as unjustifiable for the clinician to designate a person "feeble-minded" by some arbitrary standard as it would be to call a person "defective" because somewhat below one's arbitrary standard for normal height; that to segregate so-called "feeble-minded" is as daring and audacious as it would be to segregate people who are short of height. That such an analogy is unwarranted is evident when we realize, first, that physical malformations do not necessarily imply a condition of defective nervous organization which ultimately incapacitates an individual for a fair environmental adaptation. But a "normal-looking" person burdened with defective nervous tissue, must inevitably indicate an incapacity for adaptation. Short people may be normal, useful members of the community; they present no

problem. But those with a defective nervous organization cannot function normally at large, and can be made useful members of the community only under thorough supervision and in an artificially constituted environment; they certainly do present a grave social and racial problem.

Second: Recent physio-chemical studies in the related realms of fermentation, hormonal activity and colloidal physics and chemistry, have revealed much regarding physiological functioning, which, if we postulate a psycho-physical parallelism, must as a consequence, be of great significance for the study of mental deviation. For example, Dr. Peters' research in this field (15) has led him to conclude as follows: "I believe that the evidence of studies made by this technique [physio-pathological and psycho-pathological] shows that with mental defectives, including the feeble-minded we are studying primarily errors of physical growth and development whose essential nature is not simply neural but extends in some degree, and in many cases most pronouncedly, to any or all other systems of organs." p. 181 . . . "The feeble-minded, therefore, [both hereditary and accidental types] stand before us as a biological, a pathological phenomenon, the physio-pathological study of which can be differentiated into a physiological and a biochemical subdivision." p. 181. It is claimed by Peters that physio-pathological manifestations are so easily detected in the feeble-minded that "a competent and experienced examiner will successfully diagnose from 75 per cent. to 100 per cent. of unselected mental defectives independently of the customary psychological examinations." p. 182. Some of us, therefore, who understand feeble-mindedness to be merely a mental phenomenon, detached from its physiologic ramifications, may perhaps be in error. Mental deficiency, as above conceived, is merely a symptom of grave constitutional, metabolic disturbances, as a result of which the afflicted individual is incapacitated for normal functioning. This concept is thoroughly biological and detached from any taint of arbitrariness, for, unlike the unusually short individual, the mental deficient lacks that essential internal physiological development and adjustment which will permit him to take his place in society alongside his normally-constituted fellows.

Third: Evidence is daily accumulating, even if it is not yet entirely convincing, that feeble-mindedness is to a great extent an hereditary condition. The following table summarizing Goddard's data (6) shows how accurately this is borne out by actual field investigations.

Heredity of Feeble-Mindedness (Mendelian).

Type of Mating	No. of Matings	No. Off- spring	Dead and Men'tly Und't'd	FEEBLE-MINDED OFFSPRING		NORMAL OFFSPRING	
				Actual Find'gs	Theoretical Expectat'n	Actual Find'gs	Theoret'l Exp't'n
FF-FF	144	749	267	476	482	6	none
FF-NF	122	698	327	193	185½	178	185½
FF-NN	18	66	32	none	none	34	34
NF-NF	33	212	66	39	36½	107	109½
NF-NN	7	27	4	none	none	23	23
Totals	324	1752	696	708	704	348	352

FF indicates an individual who is feeble-minded. None of the sperm or egg cells produced possessing the determiner or the combination of determiners or factors which make for normal-mindedness.

NF represents a normal individual, half of whose germ cells are capable of transmitting normality, and half not.

NN represents a normal individual, all of whose germ cells transmit the potentiality for normal mental development.

The close correspondence between actual findings and theoretical expectation in the above table is most remarkable and strongly confirms the assumption that feeble-mindedness is a distinct hereditary condition. On the one hand, 708 feeble-minded individuals were found, when one would theoretically expect 704, and on the other hand, 348 normals were found, when one would theoretically expect 352. No controlled experiments could yield any greater conformity between accepted theory and actual results. It is evidence such as this which inclines one to disregard the statement that feeble-mindedness is a condition arbitrarily designated. If it is arbitrary, man-made and "cerebral," how is it that it follows strict biological law, a law as true for "homo sapiens" as for other animals and for plants?

Since a very large proportion of feeble-mindedness can be causatively traced to heredity, which is a biological manifestation, it cannot be charged that the differentiation is an arbitrary one,—it is no more arbitrary than separating the green from the yellow peas in Mendel's famous experiment. The delimitation of two groups "normal" and "feeble-minded" is

no more unscientific than that of "normal variety" and "waltzing variety" in the case of mice. The waltzing characteristic has been genetically studied and found recessive, due probably to the absence of some determiner making for "normal" behavior. Feeble-mindedness has also been genetically studied and found recessive, very likely because of the absence of some determiner making for normal intelligence. An accurate, thorough technique should make it just as easy to determine one type of defect, termed "feeble-mindedness" in humans, as it is to determine the defect termed "waltzing" in mice.

Fourth: It is now generally accepted by all authorities on mental deficiency that once a person is feeble-minded, he will always remain so. No psychological, medical or educational treatment has as yet been devised which can transform an individual burdened with deficient nervous tissue and a disorganized metabolism into one whose innate mental endowment and bodily functioning can be made to approximate those of normal persons. So that, if "feeble-mindedness" were a mere name, just a loose tag, arbitrarily placed upon certain backward individuals, then a thorough, intensive treatment ought to bring them out of that condition. A single authentic case in which that has ever been accomplished, is yet to be presented.

Fifth: Feeble-mindedness is essentially a biologic phenomenon, and only secondarily a social one. It has been claimed that a person found feeble-minded in the United States might not be so found if transferred to Central Africa, or even to the Adirondack Mountains where the routine of life has remained rather simple. It has been stated that were Australian aborigines, for example, transferred to England, they would be found feeble-minded for that environment. One cannot criticise such a statement since it does not adequately put the issue. What is usually meant is this: Given two newly-born children, one a descendant of a healthy aboriginal tribe, the other a product of definitely feeble-minded stock, it is claimed that were the aboriginal child placed in a highly complex environment, he would ultimately be classed "feeble-minded." Whereas, the feeble-minded child, grown to adulthood amid semi-civilization, would be found comfortably well-adapted to the simple environment in which he had been placed. As one writer has popularly stated it, "an imbecile is normal in a community of imbeciles." The answer one can give to such an argument is two-fold: (1) We have been too

much inclined to underestimate the intelligence development of savages, of primitive and simple peoples. In this the writer is supported by modern anthropologists who maintain that the uncivilized are the equals of the civilized in the matter of innate mental endowment, which is potential in character, certain powers developing or atrophying, depending upon environmental demands and stimulations. Consequently, given an infant of an uncivilized group possessing a healthy nervous system, it is highly doubtful whether the average educational treatment in a highly complex society would turn him out mentally deficient. If such were the case, however, it would stand more as an indictment of civilization's (?) educational methods rather than as an indication of the child's lack of normal nervous tissue. (2) Considering feeble-mindedness as a biological aberration, change of environment cannot change inherent deficiencies and disturbances. It is admitted that in some cases life would perhaps be easier for the feeble-minded if a transition were made to an uncivilized, simple primitive environment. Still, one cannot help but believe, in view of the above-mentioned facts, that in quite a percentage of cases life would undoubtedly be made much more difficult and hazardous. At any rate, no imaginable change of environment can alter an individual's defective ancestry. In a word, the serious, permanent lack in innate mental endowment, what Spearman chooses to call the "general factor," not considering the disturbed metabolism, entirely incapacitates the feeble-minded for normal functioning in any natural environment.

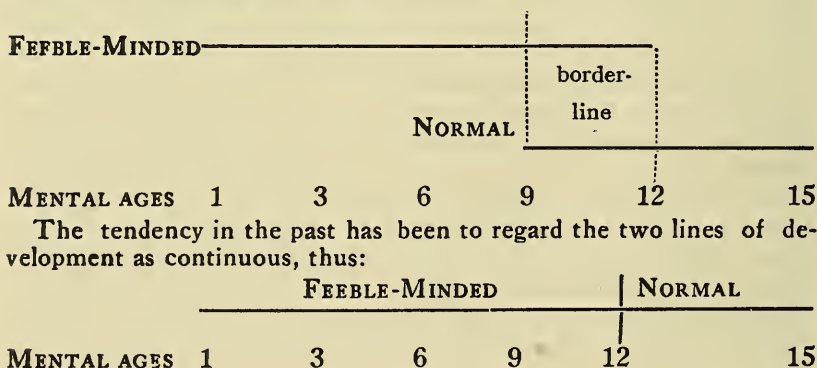
We have dealt at length with this question of the arbitrariness and artificiality of the designation "feeble-mindedness," since a general understanding of the condition with which we are dealing is essential before the discussion may be properly undertaken.

III. Overlapping.

In plotting the distribution curve for the incidence of the various levels of mental development, whether on the basis of at-age, 1 year above, 2 years above, 1 year below, 2 years below, etc., or on the basis of "super-normality," normality, backwardness and feeble-mindedness, the result has always been a smooth, bell-shaped graph. For that reason many have been misled into the belief that feeble-mindedness suddenly appears at a certain point on the curve, below which all cases are feeble-minded, and above which all cases are backward, normal or precocious. Where that point is set, it was

concluded, must evidently be a rather arbitrary matter on the part of the statistician. A fair criticism.

A careful consideration of the situation will reveal the fact that such a curve obtained for school children between the ages 5 and 14 or 16 must be different from that obtained for adults, not in form so much as in inherent character. Thus, a feeble-minded [potential], boy of 7, testing 7 would be included under the "at-age" group and consequently considered "normal" when, in reality, he should be placed among the feeble-minded. For that reason, such a graph for school children understates the situation. For adults, however, the graph is more accurate. And especially is it of interest to note that if feeble-mindedness is not estimated on the basis of a certain number of years' backwardness, but rather on the individual's general behavior in society, his reactions to a large accumulation of mental tests, his heredity, his physiological constitution, his mental age being then determined, it will be observed that at certain points in our mental scale, possibly somewhere between 9 and 12, the possession of such or such mentality is not necessarily indicative either of normality or of feeble-mindedness; that to make a satisfactory diagnosis, much more data are required than can be obtained under limited conditions. It is found that the normal and feeble-minded groups overlap to this extent: We may have, for example, feeble-minded individuals possessing mental ages anywhere between less than one year and $11\frac{1}{2}$ years, and we may have normal individuals whose mental ages may range anywhere between 10 or $10\frac{1}{2}$ and 13 or 15, whatever the upper limit of mental development may be. Presented graphically, the following is the situation:



It is due to that fact that the false impression of a border line has gained such wide acceptance. Feeble-mindedness and normality are both distinct conditions presenting a certain degree of variability. Theoretically, the variability of two groups with regard to the same trait may be any one of four kinds: (1) The variability of one may correspond exactly with that of the other; (2) the variability of one may overlap that of the other; (3) the variability of one may be entirely independent of the other; and, (4) the end variable of one may be the beginning variable of the other. Presented in graphic form for variability in mental age, the four types may be indicated as follows:

(1) CORRESPONDENCE

FEEBLE-MINDED			
NORMAL			
M. A.	1	6	12

(2) OVERLAPPING

FEEBLE-MINDED			
NORMAL			
M. A.	6	9	12 18?

(3) INDEPENDENCE

FEEBLE-MINDED			
NORMAL			
M. A.	1	6	12 13 18?

(4) CONJUNCTION

FEEBLE-MINDED			
NORMAL			
M. A.	1	6	9 12 18?

If it were in one's power to turn back the wheels of time and so modify the brain organization of the feeble-minded as to yield type 3, the difficulties of clinical diagnosis would be almost entirely eliminated. As stated above, our habit has been to regard type 4 as representing the true state of affairs. We are now beginning to realize that there is no point or line separating the feeble-minded from the normal. The division is rather realized through a so-called "borderline" group, the members of which, both normal and mentally deficient, react to the measuring scale of intelligence in a more or less similar manner, at least so far as the bare, objective

data are concerned. This condition is represented in type (2). For that reason, to accept a specific mental age, or a definite intelligence quotient, or a particular mental coefficient or a specified per cent. as the point at which normality ends and feeble-mindedness begins, is to court results untrue to fact. A scientific estimation of intellectual deficiency will not tolerate such an artificial, arbitrary standardization. And in this connection, the hope of ever arriving at a generally accepted definition of feeble-mindedness can only be held futile (17) (p. 557) as long as we consider feeble-mindedness and normality to be separated by an arbitrarily selected line. The differences between the two conditions is not a point or line difference, but rather, expressed geometrically, a distance or area difference. Borderlinity then, is not uni-dimensional, it is bi-dimensional. L. Harrison Mettler (12) has recently emphasized the fact that mental functioning is a graded manifestation, no sharp lines of demarcation, no fixed points, existing. He therefore advises abandoning the use of the term "borderline" and in its place substituting the word "borderland." The change in terminology, however, is not absolutely necessary if there can be general agreement on the matter of definition.

IV. Borderlinity.

Begun one hundred years ago, the scientific study and treatment of mental deficiency has developed quite rapidly. so much so that it is now experiencing rather uncomfortable growing pains. The recognition that the feeble-minded greatly contribute to the continued existence of many social ills, the fact that the facilities for safely determining mental defect have become more and more accurate and refined, and finally, the public desire to segregate the higher types of the mentally deficient, have tended to bring us uncomfortably closer and closer to those imaginary lines which divide the normal from the feeble-minded. Up to the present time, the term "borderline" has been applied to all sorts of cases, backward, feeble-minded, normal, psychotic, to doubtful subjects or those whose mental condition seemed variable or difficult to diagnose. In fact the term has served as a protective blanket to cover many of our clinical shortcomings. To what general misunderstanding the use of a term of such wide and varied connotation is liable, is quite evident. How much unnecessary disagreement might have been avoided by an early definition and explanation of borderlinity, it is difficult to estimate. The suggestion is therefore made that the term

"borderline" in amentia be made to apply only to those individuals who come within the mental age limit (lower and upper) determined by a mental age scale: no normal individuals being found below the lower limen and above the upper limen no feeble-minded individuals ever being found. To illustrate: At the Chicago House of Correction (10) it was ascertained that in over 500 cases examined (males, 17 to 21 years), no subjects who were feeble-minded ever tested 11³ or over, and no subjects who were normal ever tested 10³ or below. (The Vineland revision of the Binet scale was used). In other words, 10³ and 11³ appeared as the limits dividing the two groups. But between 10³ and 11³ there appeared both normal and feeble-minded types, almost evenly divided, with this series of possibilities:

(1) The chances that a subject testing 10⁴ was normal were about 1 to 5;

(2) The chances that a subject testing 11⁰ was normal were about even;

(3) The chances that a subject testing 11¹ was normal were about even;

(4) The chances that a subject testing 11² was normal were about 5 to 1.

All testing 10³ or below were found to be feeble-minded; all testing 11³ or over were found to be normal. An excerpt of the table indicating the borderline group, based on the Chicago House of Correction figures is here presented:

Borderline										
Binet age	10 ¹	10 ²	10 ³	10 ⁴	11 ⁰	11 ¹	11 ²	11 ³	11 ⁴	12 ⁰
Normal				4	12	17	15	16	30	15
Feeble-minded ..	19	24	23	24	11	13	4			

It is recognized, of course, that we handled a highly selected group and that perhaps the differentiating limits for a more truly representative group may be other than 10³-11³. At any rate, we offer these limits for what they are worth.

It might be well at this point to review briefly evidence obtained by others bearing on this problem. In their "Report of the Commission for the Investigation of the White Slave Traffic, So-called," (5) the authors state the mental ages of 154 feeble-minded and 135 normal women, permitting the following tabulation:

					Borderline			
Binet age	5	6	7	8	9	10	11	12
Normal					4	32	71	17
Feeble-Minded			8	19	50	67	10	

It is readily apparent that the borderline group as here indicated would be included within the limits 9 and 11.

In Research Bulletin No. 1 of the Whittier State School (19) J. Harold Williams classifies 36 per cent. of 400 boys feeble-minded, and 25 per cent. borderline. He then states "All of the first group and many of the second are of such low intelligence as to warrant their removal to an institution or colony organized on much different lines from the ordinary industrial school. Moreover, this segregation should be permanent, or should extend at least through the procreative period of life." (p. 10). One is led to infer that this borderline group contained feeble-minded and normal individuals. It is regretted that the further analysis of this group was not published, except for the statement made in an earlier publication (18) that "the Borderline group consists of those who are likely to develop just a little beyond twelve years." (p. 5-6).

In the Ohio Board of Administration Publication, No. 7, (7), Thomas H. Haines cites 1,000 cases examined by the Binet scale.

224 cases tested under 10 (Feeble-minded).

586 cases tested between 10 and 12 (Feeble-minded and Normal).

190 cases tested over 12 (Normal).

Of the 586 cases between 10 and 12 years mentally, 346 were found feeble-minded, and 240 were found normal. 10 and 12 appear here to be the limiting boundaries of the borderline group.

C. S. Rossy in his "Report on the First Three Hundred Cases Examined at the Massachusetts State Prison," (16), mentions 29 borderline cases. He used the Yerkes modification of the Binet scale. No borderline subject tested less than 11.6 nor more than 13.5, none of these being classified as feeble-minded. The term "borderline" was applied "in some cases on account of illiteracy, and in other instances on

account of the negative character of the history obtained." p. 13.

In Ordahl's "Study of Fifty-three Male Convicts" (14), no cases testing 10 or less were found normal, and no cases testing 11 or more were found feeble-minded. These findings most nearly approach ours.

In her "Report of the Psychological Work in the California School for Girls," (4), Grace M. Fernald includes within her borderline group cases between the mental ages of 10 and 12.

It is unfortunate that all of us are not using some one generally accepted modification of the Binet test scheme, thus making our data more comparable. Aside from the unnecessary multiplication and duplication of effort, some super-sensitive critic will advertise a disagreement in the above-mentioned results when actually that is far from being the case. It is therefore suggested that we focus a little more of our attention upon an accurate delimitation of the borderline group. With these limits determined, all cases falling within this group might be characterized "borderline." Doubtful cases should be called doubtful until we are more sure of our diagnoses. There is no reason for calling a subject "borderline" because the diagnosis is difficult, or unusual, although a large proportion of the "difficult" cases do fall within the borderline group.

Thus far we have been considering subjects 16 or 17 and over chronologically. What of the borderline cases 15 years of age and under? The problem here is greatly complicated. It is quite possible, as previously indicated, that a subject who is 7 years chronologically may prove to be 7 years mentally by the Binet scale and yet be feeble-minded. This condition occurs frequently in hereditary cases. It is therefore best to fall back upon either of two methods: (1) to regard those borderline who are about two years behind in mental development, if below nine, or about three years behind if over 9; or (2) those subjects whose intelligence quotient (mental age divided by chronological age) is between 75 per cent. and 80 per cent. (Kuhlmann). (11), (3).

V. Practical Considerations: Psychological and Educational.

With the above suggestions in mind, what might perhaps be our procedure in handling borderline types?

First of all, we should determine accurately the lower and upper limiting boundaries of borderlinity for cases over 15 years chronologically (perhaps 10³-11³), and for those

under 15 years (perhaps an I. Q. of 75-80 per cent.). We should then limit our term to these two groups, in order to avoid confusions of definition and interpretation. A careful analysis of so-called doubtful cases would then reveal the fact that a very large proportion fall within the borderline group as above indicated. It is the borderline doubtful case to which our energy must be particularly directed. Under ideal conditions, borderline children in the public schools would be sent to a special center, a restoration and observation school where treatment would be psychological, medical and educational, and where attendance would be compulsory and in some cases for the child's full time. This school could serve three purposes: (1) as a training school preparing feeble-minded children for permanent institution or colony life; (2) as a center for the removal of those handicaps in normal children making for mental retardation, treatment being supplemented by such special training as would eliminate as much of existing backwardness as possible; and (3) as an observation school (*Beobachtungsanstalt*) where doubtful, difficult cases might be studied and followed up. As a result of this individual investigation and treatment, those subjects heretofore regarded as borderline or doubtful could more accurately be designated feeble-minded or not. If feeble-minded, they could be transferred at the end of a definite training period to a custodial institution, and if not, they could be placed out, after having received vocational training, and then be systematically followed up for a period of time. In lieu of such an ideal condition, the value of studies of borderline subjects segregated in institutions for the feeble-minded has recently been demonstrated by Dr. Gertrude E. Hall and Miss Marion Collins who, with the co-operation of Dr. Chas. Bernstein at the Rome Custodial Asylum, have had under investigation 52 borderline cases since 1913, (8), (9). Of these, in 1915, 37 were still in the institution, 13 had been discharged, and two had died. The activity of all of the discharged cases, with perhaps one exception, is being closely followed. The value of such after-care and follow-up is self-evident.*

It is work of this character which will assist in reinforcing the confidence of the public in the fairness and thoroughness of those who are attempting to handle the problem of feeble-mindedness, and will undoubtedly hasten the elimina-

*Other institutions have preceded Rome in the matter of placement and follow-up.

tion of those higher grades of amentia which present such serious obstacles to diagnosis and treatment.

VI. Summary.

(a) By "borderline," as used in this article, is meant a distance or an area between whose limits there is an occurrence of both feeble-minded and normal types; below the lower limit all cases are feeble-minded, and above the upper limit all cases are normal. Note that there is no line dividing the normal from the mentally deficient.

(b) The boundaries of this borderline group are at present best determined by the Binet scale. Using Dr. Goddard's 1911 revision, we find the lower limit of borderlinity to come at about $10\frac{1}{2}$, and the upper limit at about $11\frac{1}{2}$. In other words, all of our cases showing a mental age under $10\frac{1}{2}$ were found feeble-minded, a large amount of other data aside from the results of the Binet scale being used to assist us in determining the existence of mental defect, and all of our cases showing a mental age of $11\frac{1}{2}$ or over were found ultimately to be of normal intelligence.

(c) Consequently, those possessing a mental development between $10\frac{1}{2}$ and $11\frac{1}{2}$ years fell into the borderline group, approximately half of which were normal, the other half being feeble-minded. And of course, the more a subject's reaction tended toward the $10\frac{1}{2}$ limit, the greater was the ultimate probability that he was feeble-minded; and the more it tended toward the $11\frac{1}{2}$ limit, the greater was the probability that he was normal.

(d) In summarizing our two years' experience at the Chicago House of Correction, we feel safe in maintaining that the Binet scale by itself is of extreme value in determining mental defect below a mental age of 10 or $10\frac{1}{2}$ for subjects whose chronological age is 15 or over. For the borderline group, a large amount of other data is necessary, psychological, social, physiological in nature, in order to make an accurate diagnosis regarding the existence of mental defect.

(e) Below the chronological age of 15, the borderline problem is greatly complicated. It is quite possible that a subject who is 7 years chronologically, may prove to be 7 years mentally by the Binet scale and yet be feeble-minded. This condition occurs frequently in hereditary cases. It is therefore best to fall back upon either of two methods: (1) to regard those borderline who are about two years behind in mental development, if below 9, or about three years behind if over 9; (2) to regard those subjects borderline whose

intelligence quotient (mental age divided by chronological age) is between 75 and 80 per cent. (Kuhlmann).

(f) Our institutional experience leads us to the conclusion that a more earnest and more thorough consideration of the borderline doubtful case by the public school authorities is absolutely essential on the one hand; and on the other, either the creation of a special department in institutions for the feeble-minded, or the organization of an entirely new type of institution, such as is now in existence in Germany (Beobachtungsanstalt), in which these doubtful cases may be studied to determine the causes back of the condition, every effort being made, medical and educational, to bring the subject up to a normal functioning level. Given a representative population of 100,000 it is absolutely safe to maintain that at least 50 are so close to the borderline of feeble-mindedness and insanity that such special treatment is more than warranted. And I am convinced that this number is greatly under-estimated. It is our most sacred and important duty to learn to sympathetically understand these feeble brother and sisters of ours, and so adjust them or the warped environment in which they live, that they will round out a life of happiness complete with socially-valuable activity.

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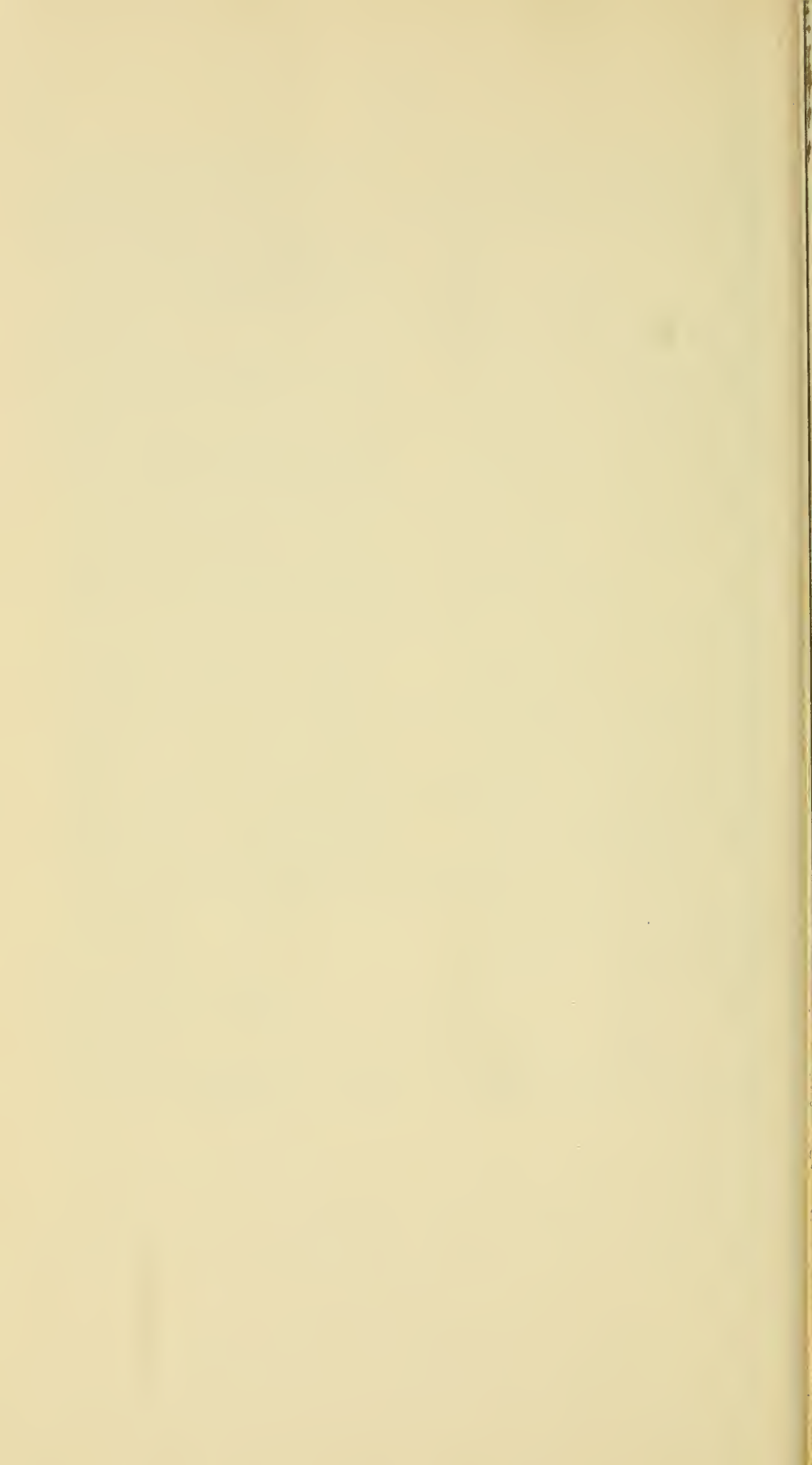
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- Medical Research at the Training School for Feeble-Minded Children, Vineland, New Jersey, 62, vol. 17.
- Mental defect,—*as found by the field worker*, 145; vol. 17; *diagnosis of higher grades of*, 73, vol. 18; *among dependent children*, 175 vol. 19.
- Mental defectives,—*some types of*, 111, vol. 18.
- Mental deficiency,—*degree of expressed by relation of age to mental age*, 132, vol. 17; *detection of borderline cases of*, 3, vol. 20; *borderlines of*, 88, vol. 20.
- "Mental Health of the School Child"—*an analysis of Dr. Kuhlmann's attack on*, 95, vol. 19; *Dr. Wallin's reply*, 154, vol. 19.
- Mental hygiene,—*significance of intelligence tests for*, 119, vol. 18; *of rural communities*, 69, vol. 20.
- Mentally deficient children,—*work among in Grand Rapids, Michigan*, 194, vol. 16; *teaching music to*, 150, vol. 19.
- Mental tests,—(cf. *Binet-Simon Scale*), Meumann, 75, vol. 19; 123, vol. 19; 187, vol. 19; *for feeble-minded*, 200, vol. 19.
- Meumann,—*on tests of endowment*, 75, vol. 19; 123, vol. 19; 187, vol. 19.
- Minutes of the association, 34, vol. 16; 36, vol. 17; 46, vol. 18; 108, vol. 19; 45, vol. 20.
- Mogridge, George (and Wm. Healy), *A Feeble-Minded Genius*, 93, vol. 16.
- Moulton, A. B., *Measles in a State Institution*, 204, vol. 16; *Wassermann Tests; Six Hundred cases of Feeble-Mindedness at the Minnesota School for Feeble-Minded and Colony for Epileptics*, 222, vol. 18.
- Murdoch, J. Moorhead, *State Care for the Feeble-Minded*, 34, vol. 18.
- Music,—*teaching to mentally deficient children*, 150, vol. 19.

- Palsies,—infantile cerebral, 197, vol. 18.
- Pediatric Department of a University Medical School, 63, vol. 20.
- Peters, Amos, Relation of Biochemistry to the Problems of Psychopathology, 56, vol. 17.
- Porteus, S. D., Mental Tests for Feeble-Minded: A New Series, 200, vol. 19.
- Psychological Principles Underlying the Binet-Simon Scale, 93, vol. 18.
- Race Betterment, 128, vol. 18.
- Rogers, A. C., The Evolution of the Research Movement (editorial), 140, vol. 16; Self-Supporting Feeble-Minded (editorial), 74, vol. 17; State Support to Special Classes (editorial), 237, vol. 19; Teachability of the Feeble-Minded (discussion), 55, vol. 18; Unit Characteristics and Mentality (editorial), 208, vol. 16.
- Book Reviews:
- Backward and Feeble-Minded Children (Huey), 141, vol. 16; The Feeble-Minded (Sherlock), 77, vol. 16; Some Fundamental Verities in Education (Groszman), 141, vol. 16; Height and Weight of Feeble-Minded Children in American Institutions (Goddard), 143, vol. 16; Heredity in Relation to Eugenics (Davenport), 209, vol. 16; Wassermann - Noguchi Tests (Bernstein), 143, vol. 16; The Kallikak Family (Goddard), 83, vol. 17.
- Rome Custodial Asylum,—training of feeble-minded children, 135, vol. 19.
- Rural communities,—school as a factor in mental hygiene of, 69, vol. 20.
- Schlapp, Max G., Recent Progress in Dealing with Feeble-Minded and Mentally Defective Dependent Children, 175, vol. 19.
- School as a Factor in the Mental Hygiene of Rural Communities, 69, vol. 20.
- Sedgwick, Julius P., Book Review: Zur Kenntnis der gehauften nicht-epileptischen Absencen in Kindesalter (Friedmann), 116, vol. 17; Spasmophilia and Epilepsy, 8, vol. 18.
- Sensory Gymnastics,—value of, 29, vol. 17.
- Sleighton Farm,—work with feeble-minded at, 230, vol. 18.
- Spasmophilia and Epilepsy, 8, vol. 18.
- Special Classes,—for subnormal children, 20, vol. 17; in New York City, 59, vol. 19; special schools versus, 67, vol. 19; state support to (editorial), 237, vol. 19; and institutions, 78, vol. 20.
- Special Schools Versus Special Classes, 67, vol. 19.
- Speech Development in Idiots and Imbeciles, 7, vol. 17.
- Speech Syndrome, 40, vol. 20.
- State Care of the Feeble-Minded, 34, vol. 18.
- State's Policy Towards the Care of the Feeble-Minded, 51, vol. 19.
- State Support to Special Classes, 237, vol. 19.
- Sterilization,—surgical, 185, vol. 18.
- Storer, Mary, The Defective Delinquent Girl, 23, vol. 19.
- Sub-normal children,—Special classes for, 20, vol. 17.
- Suggestions for Revising, Extending and Supplementing the Binet In-

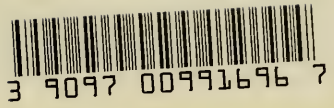
- telligence Tests, 20, vol. 18.
- Surgical Sterilization as a Eugenic Measure, 185, vol. 18.
- Swift, Walter B., A Study of the Voice Among Feeble-Minded—A Speech Syndrome, 40, vol. 20.
- Teachability of the Feeble-Minded, 54, vol. 18.
- Teaching Music to Mentally Deficient Children, 150, vol. 19.
- Terman, Lewis M., The Binet-Simon Scale for Measuring Intelligence—Impressions gained by its Application upon Four Hundred Unselected Children, 103, vol. 16; Psychological Principles Underlying the Binet-Simon Scale and Some Practical Considerations for its Correct Use, 93, vol. 18; Review of Meumann on Tests of Endowment, 75, vol. 19; 123, vol. 19; 187, vol. 19; The Significance of Intelligence Tests for Mental Hygiene, 119, vol. 18; Suggestions for Revising, Extending and Supplementing the Binet Intelligence Tests, 20, vol. 18; (and H. E. Knollin) Some Problems Relating to the Detection of Borderline Cases of Mental Deficiency, 3, vol. 20.
- Tests: cf. (Binet-Simon Scale) also (Intelligence Tests).
- Thyroid function,—disturbance of, 12, vol. 16.
- Town, Clara Harrison, A Study of Speech Development in Two Hundred and Eighty-five Idiots and Imbeciles, 7, vol. 17.
- Ungraded Classes,—careers of 350 children who have left, 20, vol. 20.
- Ungraded Class Work in New York City, 59, vol. 19.
- Untrained Examiners,—results of examining a thousand public school children with Binet-Simon tests, 150, vol. 18; 233, vol. 18.
- Van Wagenen, Bleecker, Surgical Sterilization as a Eugenic Measure, 185, vol. 18.
- Vaughn, Victor C., Race Betterment, 128, vol. 18.
- Voice,—study of among feeble-minded, 40, vol. 20.
- Wallin, J. E. Wallace, An Analysis of Dr. Kuhlmann's Attack on "The Mental Health of the School Child," 95, vol. 19.
- Walsh, Elizabeth A., Ungraded Class Work in New York City—Methods and Results, 59, vol. 19.
- Warmeling, Edward, Teaching Music to Mentally Deficient Children—Some Practical Hints as to Methods, 150, vol. 19.
- Wassermann Tests,—preliminary report on, 70, vol. 17; additional report on, 227, vol. 18; report on 600 cases of feeble-minded, 222, vol. 18.
- Wylie, A. R. T., President's Annual Address, 3, vol. 16.
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